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## An Operational Knackery Survey in Devon, 1953-6

BY

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*SUMMARY.—Three hundred necropsies have been performed on cattle by the author with laboratory support, and these together with 2,550 knacker's diagnoses are discussed.*

*Part I consists of a discussion of knackery surveying in general and the circumstances and procedures of the present survey.*

*Parts II and III contain an analysis of the data obtained.*

THIS article is divided into 3 parts:—

1. A general discussion of the survey.
2. Tabulated data relating to the survey as a whole.
3. A presentation and discussion of the knacker's findings and the author's detailed necropsies.

Part I of the paper is a summary of a detailed report on knackery surveying in general previously submitted to the Agricultural Research Council as sponsors of the survey.

### Part I

The object of the survey was to determine the reasons for cattle wastage as seen in a knackery.

The work was mainly done at a knackery at Hatherleigh, Devon, between November 3rd, 1953, and June 5th, 1956.

In addition to the necropsies performed by the author, the knacker foreman kept a record of his diagnosis of the cause of death in all cattle passing through his hands, and in a high proportion of cases his findings appear to be reliable. That such conclusions are useful is borne out by the fact that the seasonal incidence trends were broadly similar in each of the years in which records have been kept.

*Discussion of Necropsy Procedure*

In any survey one must first know what one wishes to learn from the survey. As Bradford Hill (1951) has written, to quest without precise objectives "is mere wishful thinking, mere hoping that *some* rabbit will come out of the hat, if only the hat is big enough." The objectives should be defined and limited. In this respect this survey is weak as it was too operational to give precise results; its conclusions are, however, strongly indicative.

Knackery survey work falls into two parts; the purely scientific and the practical. So far as the former is concerned, it is necessary to decide before beginning the survey what diseases and conditions are to be looked for in every case and why and how. So far as the practical side of the work is concerned, an attempt can usually be made to ascertain the cause of death or debility so that the farmer and veterinary surgeon may benefit.

The information must be capable of being put on to a card-indexing system; unless this can be done a jumble of useless data results.

All organs in every cadaver cannot be examined and obviously many of them are not seen, but it is essential that the same organs be examined in the same way in every case so that at the end of the survey the incidence of disease may be known.

*The Quality of the Sample*

For many reasons the sample was not truly random; visits to the knackery have been irregular and not all stock on a particular day have been examined, either because they arrived at an inconvenient time or because they were putrid. Also, it is probable that calves are not fully represented as they often do not pay the cost of collection. In spite of the defects in the sample, either the knacker's figures or those of the author will give a fair assessment of the cause of death as seen in a Devon knackery.

*The Cattle Population of the Area*

A concurrent Dairy Cattle Disease Survey of the area under Dr. Withers showed that 57 per cent. of the farmers sent their knacker stock to the knackery at which the work was done. Table I, which is based on the Agricultural Returns (June 4th), 1954-5, gives the cattle population drawn on by the knackery.

TABLE I

CATTLE POPULATION ACTUALLY SUPPLYING HATHERLEIGH KNACKERY

| | | Per cent. |
|---|---|---|
| Cows and heifers in milk ... ... ... | 28,503 | 27·3 |
| Cows in-calf but not in milk ... ... | 6,582 | 6·3 |
| Heifers in-calf with first calf ... ... | 6,491 | 6·2 |
| Bulls being used for service ... ... ... | 440 | 0·4 |
| Bulls and bull calves being reared for service | 88 | 0·1 |
| Two-year-old and over (steers) ... ... | 7,762 | 7·4 |
| " " " (female) ... ... | 7,739 | 7·4 |
| One-year-old and under two years (male) ... | 9,172 | 8·8 |
| " " " (female) | 13,462 | 12·9 |
| Under one-year-old, male, excluding bull calves ... ... ... ... ... | 10,133 | 9·7 |
| Under one-year-old, female ... ... ... | 14,219 | 13·6 |
| Total ... ... ... ... ... | 104,591 | |
| Total population of the area ... | 182,616 | |

*Laboratory Work*

Access to a laboratory was essential in this type of work. It was found convenient and hygienic whenever possible to send material to the laboratory in its own container, *e.g.* bile in the gall bladder. Polythene bags, 12 by 15 inches, were used for the despatch of specimens; not only are they clean and sterilisable, but they can be numbered in Biro, and also save time in packing, take up much less room in the post, and should a package leak or a bottle break, there is no danger to the mails.

*Recording Information*

Necropsy data can best be typed on to a suitable form at the site of the *post-mortem* examination. This allows one to refer to the cadaver while writing the notes and it is a legible and clean method. The data can, after the receipt of the laboratory findings, be put at leisure on to a suitable punched record* card. The data cannot be put on to the record card at the necropsy as an assessment of the findings depends in part on the laboratory results.

The marking and punching of the record cards are most time-consuming and should perhaps be confined to *ad hoc* investigations.

Inevitably, there was on occasion a certain dubitancy at the necropsy itself and the interpretation of findings was then a matter of judgment; errors of judgment tend to be magnified when put on punched cards when a further exercise of judgment is required. It is much easier to accumulate information in a knackery than to marshal it in accurate form.

* The author used Cope-Chatterton-type cards.

*Sundry Observations*

Veterinary practice and laboratory techniques tend to induce a search for a single cause of disease, whereas, as often as not, in knackery carcases several diseases occur in one animal and all may have contributed more or less equally to its demise; had it had but one disease to overcome it might have survived. Apart from disease, one is also led to reflect on the amount of cattle wastage which is due to bad management, to failure to feed stock adequately, and to give them supplementary food early enough in the winter. Too many of the knacker stock have not had treatment.

*A Comparison of Various Types of Cattle Disease Survey*

In comparing a dairy cattle disease survey, which is done on the farm, with a knackery survey, it is notable that some important diseases tend to be overlooked in the former, such as distomiasis, nematodiases, *C. pyogenes* infections, possibly enterotoxaemia, and a good deal of Johne's disease; in addition, of course, some cases, such as cardiac affections and arteriosclerosis-like conditions, are usually only found on *post-mortem* examination. On the other hand, a practitioner's survey, assuming that he has the time to do it, only covers about 60 to 65 per cent. of the cattle diseases which occur on the farm, and a proportion of these are not followed to their conclusion. A survey by laymen has definite but limited value provided that the questions are very skilfully framed and *no* exercise of technical judgment is required. Meat inspection records, on the other hand, mainly only give information about diseases, in supposedly healthy stock, which have usually not been recognised in life: as at present assembled this information is difficult to use. Each type of disease recording has its own place in the assessment of disease and none is perfect or complete.

*Notes for Future Surveys*

It is most desirable in future surveys to have precise objectives and a routine procedure for each and every carcase. Mutual benefit would result were close collaboration with specialists in respect of specific diseases to be obtained and in any case, in this type of work, ready access to specialists, particularly histopathologists, in addition to the usual laboratory facilities, is essential.

## Part II
## General Tables

The following list of Tables includes:—

II Percentage of Cattle Entering Knackery Quarterly (Knacker's Record).

III Numbers and Percentage of Sexes of Cattle Entering Knackery Annually (Knacker's Record).

IV Percentage of Animals at Risk.

V Numbers of Necropsies Conducted Monthly by the Author.

VI Age of Animals in 300 Necropsies.

VII Summary of the Weather.

TABLE II

PERCENTAGE OF CATTLE ENTERING THE KNACKERY QUARTERLY (KNACKER'S RECORD)

| Quarter | 1954 | 1955 | |
|---|---|---|---|
| | Percentage | Percentage | |
| 1 | 26 (1) | 40 (2) | |
| 2 | 30 | 24 (3) | |
| 3 | 21 | 18 (3) | |
| 4 | 23 | 18 (3) | |
| Total cattle : | 1,363 | 1,187 | Total intake : 2,550 |

(1) The low intake followed a mild autumn in 1953.
(2) A high intake after a very wet and cold spell.
(3) The good, sunny, dry summer may be reflected in these lower figures.

TABLE III

NUMBERS AND PERCENTAGE OF SEXES OF CATTLE ENTERING KNACKERY ANNUALLY (ACTUAL NUMBER OF EACH SEX IN BRACKETS) (KNACKER'S RECORD)

| Year | Heifers | Cows | Bulls, steers, etc. | Total |
|---|---|---|---|---|
| 1954 | (377) 27% | (931) 68% | (64) 5% | 1,372 |
| 1955 | (406) 35% | (688) 53% | (84) 7% | 1,178 |
| Totals : | (783) 31% | (1,619) 63% | (148) 6% | 2,550 |

The ratio of females to males in the total cattle population of the area is 3 : 1 whereas in the knackery the ratio is 15 : 1, showing that there is a disproportionate wastage of females; this is no doubt due in part to the greater age to which females are kept on farms.

TABLE IV

THE INCIDENCE OF THE COMMONER DISEASES EXPRESSED AS A PERCENTAGE OF THE ANIMALS AT RISK (AVERAGE OF 1954–5)

| Disease | Estimated number of animals at risk | Number of carcases received at knackery | Percentage of animals at risk |
|---|---|---|---|
| Johne's ... | 104,000 | 294 | 0·28 |
| Tuberculosis | 104,000 | 107 | 0·10 |
| Pneumonia... | 104,000 | 139 | 0·13 |
| Fluke ... | 104,000 | 172 | 0·16 |
| Husk ... | 54,000 | 32 | 0·06 |
| Bloat ... | 104,000 | 107 | 0·10 |
| Accident ... | 104,000 | 70 | 0·07 |

From Table V it is clear that no inferences concerning the monthly incidence of disease can be drawn as the attendances were too few; inferences of monthly incidence of disease are better taken from the knacker's data.

The preponderance of knackery deaths is in yearlings and old cows.

TABLE VI

AGE OF ANIMALS IN 300 NECROPSIES

| Age (months) | Number of calves | Age (years) | Number of adults | % of 300 necropsies |
|---|---|---|---|---|
| < 1 | 6 | 1 | 53 | 17·7 |
| 1– 2 | 2 | 2 | 24 | 8·0 |
| 3– 4 | 5 | 3 | 18 | 6·0 |
| 5– 6 | 11 | 4 | 19 | 6·3 |
| 7– 8 | 6 | 5 | 24 | 8·0 |
| 9–10 | 8 | 6 | 15 | 5·0 |
| 11–12 | 2 | 7 | 16 | 5·3 |
| | | 8 and over | 86 | 28·7 |
| | | Not known | 5 | 1·7 |
| | 40 | | 260 | 86·7 |

*(Table VII which belongs to this section of the paper is printed overleaf).*

## Part III

## A Discussion of Sundry Knackery Diseases

In discussing the knacker's findings it should be borne in mind that in 9.3 per cent. of his cases he was unable to arrive at a diagnosis other than "inflammation," "septicaemia," or "not known."

Carcases in which more than one disease was found which could have contributed to death were such a striking feature of this survey that they will be dealt with first; this will be followed by a discussion of the major common diseases and finally by mention of lesser complaints. Many diseases, while important in themselves, occurred so infrequently as not to warrant special mention.

### *Multiple Disease*

Table VIII illustrates the association of those diseases which were commonly found in the same carcase. The 6 associated diseases are found in the left-hand column of the table. The first 6 columns of figures show how they were associated with each other; the seventh gives the degree of association with other diseases, no one of which was common. The next 2 columns show the total frequency with other diseases, and as apparently single entities, respectively. Thus 29.9 per cent. of carcases diagnosed as showing Johne's disease had no lesions attributable to other entities; of the 70.1 per cent. which did have other lesions, in 21.1 per cent. fluke was regarded as contributing to the syndrome and in

TABLE V

TOTAL NUMBER OF CASES AUTOPSIED MONTHLY BY THE AUTHOR

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | Nov. | Dec. | Yearly Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1953 | — | — | — | — | — | — | — | — | — | — | 4 | 10 | 14 | 5 | Per cent. of total autopsies done in each year |
| 1954 | 6 | 15 | 6 | 24 | 34 | 2 | 9 | — | — | — | — | — | 96 | 32 | |
| 1955 | 3 | 25 | 12 | 8 | 30 | 3 | 3 | 2 | 7 | 3 | 11 | 5 | 112 | 37 | |
| 1956 | 14 | 9 | 7 | 17 | 29 | 2 | — | — | — | — | — | — | 78 | 26 | |
| Total | 23 | 49 | 25 | 49 | 93 | 7 | 12 | 2 | 7 | 3 | 15 | 15 | 300 | | |

TABLE VII

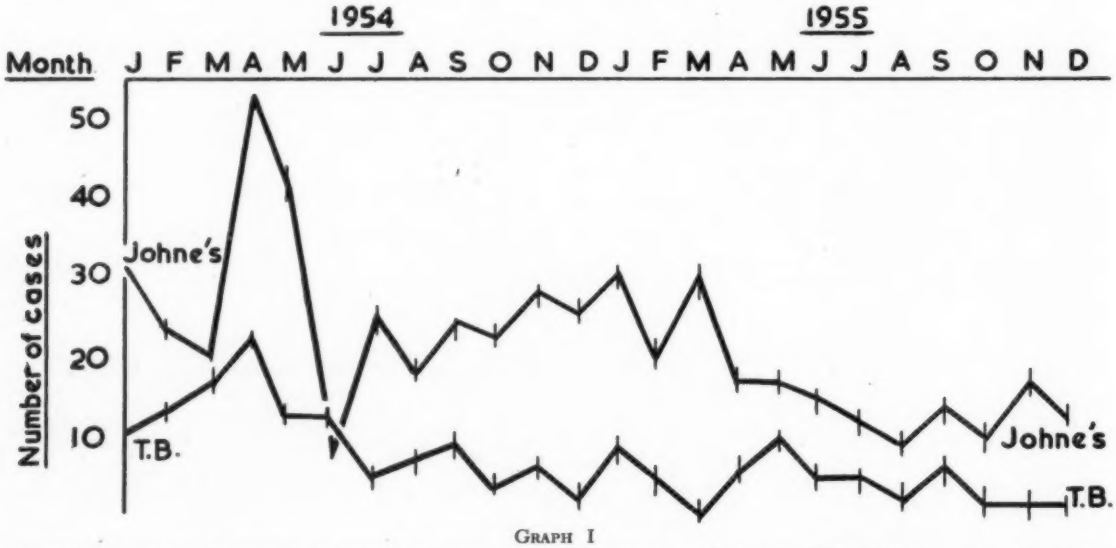
EXTRACTED FROM THE MONTHLY WEATHER REPORTS OF THE METEOROLOGICAL OFFICE, DEVON (TAVISTOCK) (ALTITUDE 457 ft.)*

| 1953 | Rainfall (in inches) | | Mean Temp. (°F.) | | General Weather for the Month |
|---|---|---|---|---|---|
| October | 5·22 | 3·50 | 51·0 | 48·7 | Cloudy at first ; brighter in middle ; white frost at end of month. Mild. |
| November | 4·12 | | 47·7 | | Mist and fog ; stormy at end of month ; slight frost. |
| December | 1·15 | | 47·3 | | A brighter, drier month. |
| 1954 | A dull, wet year with floods and gales. | | | | |
| January | 2·26 | 4·33 | 39·9 | 41·1 | Fair at first, then dull and cloudy and froze at end of month. |
| February | 5·79 | | 39·1 | | Frost for first week ; rest of month v. variable. |
| March | 4·95 | | 44·3 | | Fair at first, slight snow (first and third), cold and misty. |
| April | 0·55 | 3·24 | 47·1 | 51·5 | A good bright month. |
| May | 4·98 | | 51·9 | | Variable first half, then a bright week, and again variable. |
| June | 4·20 | | 55·5 | | Bright and dull every day, cloudy last week. |
| July | 4·42 | 5·21 | 56·1 | 54·1 | A cloudy month and wet. |
| August | 5·38 | | 51·1 | | Very variable and wet. |
| September | 5·82 | | 55·5 | | Very hot, rather brighter than August. |
| October | 5·40 | 6·59 | 53·7 | 44·9 | Wet, variable, dull ; some bright days. |
| November | 9·84 | | 46·3 | | Very wet, and cold and windy. |
| December | 4·52 | | 44·9 | | A dull, wet month. |
| 1955 | A dry, sunny year ; brilliant summer after severe winter | | | | |
| January | 5·69 | 3·81 | 41·1 | 38·8 | A dull, wet month. |
| February | 3·92 | | 36·6 | | Cold, snow and frost, particularly at end of month. |
| March | 1·81 | | 39·1 | | A dry, rather cold, and fairly bright month. |
| April | 1·99 | 3·56 | 49·5 | 51·9 | A dry, fair month. |
| May | 5·69 | | 49·0 | | First half wet and dull, second half much brighter, and warmer |
| June | 3·04 | | 57·3 | | Very variable, warm, moderate rain. |
| July | 2·37 | 1·98 | 64·3 | 62·6 | Warmer, drier and much brighter, particularly at end of month. |
| August | 0·76 | | 65·7 | | Dry, warm and bright. |
| September | 2·80 | | 57·7 | | Bright at end of month, mild. |
| October | 3·08 | 5·61 | 49·7 | 43·9 | Bright, moderate rain, not very cold. |
| November | 6·18 | | 46·1 | | First week v. wet, middle two weeks v. dry and cold, end cold and foggy. |
| December | 7·58 | | 45·9 | | A wet, dull month, not too cold, but ice at end of month. |

* Tavistock Meteorological data was considered the nearest approximation to the weather in the surveyed area.

19.4 per cent. trichostrongyles were similarly suspected; 25.9 per cent. had lesions of other diseases.

The 6 diseases fall into 2 groups. In the one, flukes and trichostrongyles (barely 6 to 8 per cent.) occurred as apparently single infestations but they commonly occurred together. In the second group, which includes the remaining 4 diseases, 25 to 30 per cent. of carcases were without lesions attributable to secondary diseases. In this group the similarity in the picture for Johne's disease and tuberculosis is quite remarkable; they appear to have been associated with the same secondary factors to almost the same extent and also their half-yearly incidences run parallel (see Graph 1).




GRAPH I

A COMPARISON OF THE INCIDENCE OF JOHNE'S DISEASE AND TUBERCULOSIS IN 1954 AND 1955 FROM [THE TOTAL] KNACKERY INTAKE

TABLE VIII

ASSOCIATIONS BETWEEN DISEASES IN 300 NECROPSIES

| | Pneumonia | Johne's | Tuberculosis | Husk | Liver-fluke | Trichostrongylosis | Miscellaneous diseases | Total No. of cases in conjunction with other cases | No. of single cases | Total cases | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pneumonia | | 0<br>**0·0** | ½<br>**2·2** | 0<br>**0·0** | 4⅔<br>**31·1** | ½<br>**3·3** | 5½<br>**36·7** | 11<br>**73·3** | 4<br>**26·7** | 15<br>**100·0** | Percentage of total cases of pneumonia. |
| Johne's | 0<br>**0·0** | | 1½<br>**2·2** | 1<br>**1·5** | 14⅓<br>**21·1** | 13<br>**19·4** | 17⅓<br>**25·9** | 47<br>**70·1** | 20<br>**29·9** | 67<br>**100·0** | Percentage of total cases of Johne's disease. |
| Tuberculosis | ½<br>**2·0** | 1½<br>**8·8** | | ½<br>**2·0** | 2½<br>**14·7** | 3<br>**17·6** | 4½<br>**25·5** | 12<br>**70·6** | 5<br>**29·4** | 17<br>**100·0** | Percentage of total cases of tuberculosis. |
| Husk | 0<br>**0·0** | 1<br>**5·6** | ½<br>**1·9** | | 4½<br>**25·0** | 4⅙<br>**23·1** | 2<br>**11·1** | 12<br>**66·7** | 6<br>**33·3** | 18<br>**100·0** | Percentage of total cases of husk. |
| Liver-fluke | 4⅔<br>**5·5** | 14⅓<br>**16·7** | 2½<br>**2·9** | 4½<br>**5·3** | | 23<br>**27·0** | 31⅓<br>**36·7** | 80<br>**94·1** | 5<br>**5·9** | 85<br>**100·0** | Percentage of total cases of liver-fluke. |
| Trichostrongylosis | ⅓<br>**0·8** | 13<br>**21·8** | 3<br>**4·8** | 4⅙<br>**6·7** | 23<br>**37·1** | | 13⅓<br>**21·5** | 57<br>**91·9** | 5<br>**8·1** | 62<br>**100·0** | Percentage of total cases of trichostrongylosis. |

Scores were allotted as follows :— 1 — two diseases causing death.
⅓ — three „ „ „
¼ — four „ „ „

**The total score for any one disease was then equal to the total number of cases of that disease, and the scores were expressed percentages of this figure (bold figures).**

In interpreting Table VIII one must bear in mind that the 3 parasitic diseases were strongly seasonal. Diseases due to flukes (Table X) and trichostrongyles were found mainly in the first half of the year and husk mainly in the second half (Table XI). The associations in Table VIII can be explained on the basis of such differences in seasonal incidence. Thus 27 per cent. of flukey carcases had lesions of trichostrongylosis, which occurred in the same seaons, but only 5.3 per cent. had lesions of husk, the seasonal distribution of which was very different.

The general conclusion to be drawn from these apparent associations is that should an animal's health break down completely, the lesions to be expected in the carcase will depend on the season at which the breakdown occurs.

Table IX gives typical examples of multiple diseases which were so common a feature of knackery work.

*Neglect and Starvation*

These factors played an important over-all part in knacker cases but only 5 instances were listed in 300 cases and none was recorded by the knacker because it is not easy to prove neglect and starvation in the almost invariable presence of other disease.

*Johne's Disease*

There was no more serious disease than Johne's disease seen in the knackery; of 300 cases, 20 per cent. showed lesions.

The incidence of Johne's disease as stated by the knackers was 24 per cent. in 1954 and 18.5 per cent.

TABLE IX

TYPICAL EXAMPLES OF MULTIPLE DISEASES AS SEEN IN ONE CADAVER

Lameness due to injury ; tuberculosis.
Generalised tuberculosis ; non-tubercular arteriosclerosis.
Tuberculosis ; Verrucose endocarditis (*Str. fecalis*).
Mastitis ; fracture of the atlanto-occipital joint (associated with *C. pyogenes*).
Milk fever ; piroplasmosis.
Milk fever ; metritis.
Choked ; large flabby heart.
Chronic emphysema of the lungs ; severe injury to the eye ; fluke ; vaginal tear.
Fell and injured leg on slippery floor ; verrucose endocarditis pneumonia ; fluke.
Milk fever ; tuberculosis ; fluke ; metastrongylosis.
Epicarditis ; pyometra ; Johne's disease.
Blackquarter ; retained placenta ; pleurisy.
Minel poisoning ; trichostrongylosis.
Bursitis (*C. pyogenes*) ; fluke ; Johne's disease.
Lactation tetany ; fluke.
Metritis (*Staph. pyogenes*). and mastitis.

in 1955 from 2,550 head of knacker cattle. Their assessment of the disease is likely to be reasonably accurate as they are well acquainted with it, further their figure corresponds closely with the necropsy findings. As was expected age did not appear to influence the incidence of Johne's disease. The marked increase in both Johne's disease and tuberculosis shown on Graph 1 in April, 1954, is not readily accounted for by bad weather.

Of a series of 242 unselected sets of ileo-caecal lymph nodes and faeces from Hatherleigh knackery, 34 per cent. of cases were positive for *M. johnei* on culture; of these, possibly 20 per cent. would have been clinically affected. From a series of 40 sets of ileo-caecal nodes submitted after necropsy, 7 which were from cases considered to be positive, proved to be so on gland culture, but only 5 of these were positive on microscopic examination of faeces. All suspicious and doubtful cases were negative on culture except for 1 which while positive on culture showed but a single acid-fast bacillus in the faeces, illustrating the difficulty of definite diagnosis. A series of 27 sets of ileo-caecal nodes from apparently healthy Hatherleigh butcher stock was negative for *M. johnei* on culture. The examination of all this material was made by, and at the suggestion of, Mr. Peter Stuart of the Weybridge Laboratory. An examination of concomitant disease with Johne's disease shows no association above the normal to be expected (Table VIII).

*Tuberculosis*

Of 300 necropsies 5 per cent. were affected by severe tuberculosis; the knacker records 8.4 per cent. in 2,550 head, and of these, 50 per cent. more died in the first six months of the year than later.

*Trichostrongylosis*

There is no doubt that this is one of the most important knackery diseases; it is hardly ever recorded by the knacker and is largely unsuspected by the farmer; it is usually associated with other disease, particularly other parasitic disease., In assessing its incidence the clinical picture has been relied on as well as egg-counts; it was known that some animals had been dosed for helminthiases prior to coming to the knackery, and it was also observed this year that low egg-yields occurred in infected cattle.

Of 300 animals necropsied, 19 per cent. were considered to be clinically affected; much the highest incidence was in yearlings in the first half of the year.

*Distomiasis*

While liver fluke in sheep is recognised as causing very great loss the same recognition does not apply to fluke in cattle, mainly perhaps because fluke in cattle is seldom fatal; only 5 deaths in 300 necropsies were thought to be due to uncomplicated fluke. However, 29 per cent. of the 300 necropsies were considered to be affected to an extent which could be termed actively diseased. This finding is borne out by the 1955 returns from Bideford slaughter-house which show that from 2,776 cattle, 9½ tons of liver was condemned, which is 63 per cent. of all liver received; the current local retail price of liver is 4s. 9d. per lb. Statistics showing losses caused by fluke are uncommon but Sällnas (1954), working with many thousands of head of cattle, gave the average bodyweight loss in cows as nearly 30 lb. per head, which represented a monetary loss of £6 12s. per beast in Sweden; this loss was both on account of down-grading and weight-loss: nearly 10 tons of liver was condemned from 3,795 head of cattle.

TABLE X

QUARTERLY INCIDENCE OF FLUKE IN 2,550 HEAD OF KNACKERY INTAKE, 1954 AND 1955 (KNACKER'S ASSESSMENT)

| Quarter | 1954 | | 1955 | |
|---|---|---|---|---|
| | Number | Per cent. of quarterly intake | Number | Per cent. of quarterly intake |
| 1st | 30 | 8·6 | 136 | 29·0 |
| 2nd | 30 | 7·3 | 76 | 28·0 |
| 3rd | 3 | 1·5 | 2 | 1·0 |
| 4th | 12 | 3·7 | 5 | 1·8 |

There must of necessity usually be a good deal of arbitrary opinion in the assessment of the damage done by fluke in cattle but there is little doubt that it is an important disease entity in Devon. The knackers give the incidence of fluke as 11.5 per cent. of 2,550 cases in which they considered that fluke was the prime cause of disease. In support of the knacker's diagnosis (Table X) shows that the incidence of fluke as recorded by him tallies closely with the weather conditions (Table VII) (Part II). Following a wet autumn in 1954, the first 6 months of 1955 showed an increased incidence of knackery-fluke of 20 per cent. over the corresponding period of 1954. The incidence of fluke did not appear to be affected by either the age of the host or previous infection, nor did it appear to be a factor in multiple disease.

An examination of the effect of fluke on Johne's disease showed that 28.3 per cent. of cases of Johne's disease were affected with fluke and 29.6 per cent. were fluke-free. It appears that fluke did not have any effect on the incidence of Johne's disease.

Sometimes an attempt is made to minimise the effect of fluke by the observation that fluke-cattle can be fat, but this anomaly applies on occasion to other serious disease.

*Pneumonia (Excluding known Cases of Husk)*

Of 300 necropsies 5 per cent. had pneumonia, and in 1.3 per cent. the pneumonia was uncomplicated. Most cases of pneumonia were secondary. Fifty-one per cent. of all the pneumonia cases in 1954 occurred in the last 4 wet months of that year; similarly, the wet beginning and end of 1955 accounted for most of the cases of that year.

*Husk*

The knacker records an incidence of 2.4 per cent. in 2,550 cases; this is likely to be the minimal incidence as he would only record severe disease. In the 300 necropsies, 18 cases of active husk were seen (6 per cent.), of which 6 were in calves under a year old (out of a total of 40 calves). On several occasions in the winter adult lungworms were noticed but they were not causing a marked tissue reaction; in 10 cases adults were observed but no larvae. Active husk was seen mainly in the period August to November, inclusive. (See Table XI.)

TABLE XI

THE INCIDENCE OF HUSK IN 2,550 KNACKER'S EXAMINATIONS (1954 AND 1955 FIGURES COMBINED)

| 1st quarter | 2nd quarter | 3rd quarter | 4th quarter |
|---|---|---|---|
| 3 | 0 | 29 | 28 |

*Corynebacterium pyogenes* infections

In 6.6 per cent. of 300 necropsies *C. pyogenes* was an important factor in causing death. In 11 of these cases it was found in association with injuries to bones and joints, there being no evidence that any specific site was particularly affected. In the other 9 the principle lesions were caused by infection of internal organs; metritis, peritonitis, pneumonia, mastitis, pyelonephritis, and pericarditis being found in different carcases.

*Accidents*

Accidents figure prominently in the knacker's records. Over a period of 2 years (2,550 cases) the following were seen:— broken legs, 14; broken necks, 6; broken backs, 13; broken ribs, 5; various haemorrhages, 20; lightning stroke, 4; burned, 1; bogged, 6; drowned, 12; strangled, 8; choked, 5; "dislocated leg," 3; ruptured (usually "horned"), 22; fractured pelvis, 7; starvation, 6; miscellaneous accidents, 8; castrations, 2; being a total of 131 cases or 12.4 per cent. of the knackery entry. The accident rate was uniformly spread throughout the year.

*Cardiac Conditions*

It is not possible to draw firm conclusions from the 32 heart conditions which were seen in the 300 necropsies (11.0 per cent.) as almost always there were concomitant diseases present also. There were 14 hypertrophied, small, elongated, or otherwise unusually shaped hearts, which generally occurred in animals over 6 years of age, but which were probably of little significance. Three of the beasts with large flabby hearts dropped dead (one while choking). Table XII illustrates 15 of the more interesting conditions.

The lesions of endocarditis have been described as "slight, local proliferation of the endocardial endothelium, a normal subendothelial *tunica elastica* and swelling, fragmentation, degeneration, and calcification of the deep elastic fibres." It seems probable that the endocarditis was secondary to some generalised circulatory disease and was not a specific atheromatous condition. It may well be that had the various lesions in the circulatory system been appreciated earlier in the survey more disease involving the circulatory system would have been disclosed. The subject seems to require further

TABLE XII

CARDIAC CONDITIONS

| Disease | Number of cases | Age | Condition of patient | Concomitant disease | Comment |
|---|---|---|---|---|---|
| Arteritis ... ... ... | 2 | 10 years | Very poor | Fluke | |
| Streptococcal endocarditis ... | 1 | 2½ „ | Good condition | — | |
| Localised endocarditis ... | 1 | Aged | Poor | Johne's disease | |
| Atheroma-like lesion of right A/V valve ... ... ... | 1 | 3 years | Poor | Enteritis | |
| Atheroma-like lesion affecting post. aorta ... ... ... | 1 | 7 „ | Poor | Johne's disease, trichostrongylosis and fluke | |
| Focal thickening of the sub-endothelial corium ... ... | 1 | 4 „ | Poor | „ „ „ | |
| Verrucose endocarditis ... | 3 | 10 „ | Good | Accident, fluke | |
| | | Aged | Poor | Tuberculosis | *Streptococcal fecalis* infection |
| | | 3 years | Fair | Injury to knee | *C. pyogenes* infection of heart. |
| Arteriosclerosis-like lesions | 5 | Aged | Very thin | Johne's disease | |
| | | 18 months | „ „ | „ „ Trichostrongylosis | |
| | | 8 years | | Johne's disease and tuberculosis | No acid-fast bacteria in heart lesion of left auricle |
| | | 11 years | Fair | Johne's disease : cystic adrenals | |
| | | 6 „ | Poor | Tuberculosis and diffuse cirrhosis of liver. | |

investigation; possibly an histological examination of a series of arterial walls would be of value.

All the cases of arteriosclerosis-like lesions were associated with diseases caused by acid-fast bacteria; almost all of these cardiac diseases have been confirmed by the laboratory findings. The not uncommon cysts of the heart valves and other minor lesions have not been referred to.

**Comments on Sundry Less Prominent Diseases**

*Abomasitis.* Three cases of acute fatal ulceration occurred in the author's records in May, 1956, in fairly widely separated parts of the county. Their cause is not known. Also in one case severe extensive cicatrised ulceration of the abomasum was seen.

*Abomasum, oedema of.* Unfortunately the record of profound oedema of the fourth stomach is incomplete, but 3 cases were met in animals 4, 14, and 18 months of age which were not considered to have had helminthiases or other disease. Priouzeau (1954) appears to refer to this condition.

*Actinomycosis.* Seven cases were seen by the knackers (0.25 per cent.) and 1 case by the author.

*Blackquarter.* Six cases were observed by the author (2 per cent.). All occurred in March, April, or May, and 5 of them were in animals 4 to 6 years of age; one seems to have been caused by *Cl. welchii* and the others by *Cl. chauvoei*. The knacker's incidence was 1.9 per cent. spread throughout the warm months of the year.

*Calving cases.* These accounted for about 1 per cent. of the knacker's annual intake.

*Coccidiosis.* Only 1 calf is recorded as dying of coccidiosis (0.3 per cent. of 300 cases).

Of 28 faeces examinations made at the Weybridge laboratory 27 showed oocysts; 21 had less than 100 per gramme; 2 had 200; and 4 had 900 to 2,100. It would be interesting to know whether coccidiosis exists as a harmful subclinical disease in cattle.

*Caecum, spasm of.* A complete spasm of the caecum which reduced its diameter to about 3 inches was seen in 2 occasions in conjunction with peritonitis.

*Enterotoxaemia (suspected).* In no case was this disease proven though in each case mentioned it was suspected by both the Starcross laboratory staff and myself. Only one suspicious case was seen by me in 1956. Thirteen cases were seen in all (4.3 per cent. of 300 cases), and 7 of these were apparently uncomplicated; complications were typanites (mouldy feed), pneumonia, septicaemia (*E. coli*), and metritis. It is noteworthy that there is evidence from practitioners that they encounter this disease in cattle. The incidence seems mainly to be confined to the first half of the year.

*Impaction of the bowels.* These accounted for about 0.5 per cent. of the knacker's cases.

*Lactation tetany (Grass staggers).* All of the 6 cases which were seen (2 per cent. of 300 cases) were strongly presumptive of lactation tetany, 5 of them occurred in March, April, and May, and all, except one 4-year-old, were 7 years old or older. All were in good condition and in no case was secondary disease observed. The knacker records an incidence of 1 per cent.

*Lameness (excluding blackquarter).* Of 21 cases of lameness (7 per cent. of 300 necropsies), 10 were aggravated by the presence of *C. pyogenes*; the causes of lameness were in great variety.

*Mastitis.* Only 10 cases are recorded in 300 necropsies (3.3 per cent.) and all were in old cows; 8 had some concomitant disease. The knacker records 63 cases (2.4 per cent. in 2,550 carcases).

*Milk fever.* The knacker records 29 cases (1.1 per cent.). This is likely to be a reasonably accurate figure as a good history can usually be obtained of veterinary attention. The autumn of 1955 was particularly mild and dry in Devon and the summer was fine also; it is notable that the incidence of milk fever was low after this good weather, but it was larger after the wet weather of 1954. In 300 necropsies the incidence was 1.6 per cent.

TABLE XIII
QUARTERLY INCIDENCE OF MILK FEVER IN 2,550 CASES

| | 1954 | 1955 |
|---|---|---|
| Quarter | Number cases | Number cases |
| 1 | 1 | 2 |
| 2 | 2 | 0 |
| 3 | 5 | 4 |
| 4 | 15 | 0 |
| | 23 | 6 |

Table XIII shows the quarterly incidence of milk fever; this incidence of fatality is not what would be expected as heifers mainly calve in Devon in September to December (inclusive) and cows in January to April (inclusive).

*Nephritis, chronic.* Four cases were recorded in 300 necropsies.

*Nephritis, acute.* Six cases were seen in 300 necropsies; *C. pyogenes* was isolated from 4 of these, *Str. viridans* and *E. coli* from 1 each.

*Pyelonephritis.* A total of 8 cases was recorded (3 per cent. of 300) in a wide age-range; only 2 of these cases occurred after 1955. *C. renale* was recovered 3 times; *C. pyogenes* 3 times; Staphylococci once, and a non-haemolytic *E. coli* once. The greatest incidence seems to be in the first half of the year.

*Piroplasmosis.* The knacker records 1 per cent. of his cases as redwater which is probably correct; only 1 case was seen in 300 necropsies.

TABLE XIV
QUARTERLY INCIDENCE OF TYMPANITES IN 2,550 HEAD OF KNACKERY INTAKE IN 1954 AND 1955

| | 1954 | | 1955 | |
|---|---|---|---|---|
| Quarter | No. cases | Percentage of quarterly intake | No. cases | Percentage of quarterly intake |
| 1st | 7 | 2·0 | 2 | 0·5 |
| 2nd | 16 | 4·7 | 7 | 2·3 |
| 3rd | 32 | 11·3 | 22 | 9·6 |
| 4th | 4 | 1·2 | 18 | 8·6 |
| Total | 59 | | 49 | |

(*Concluded at foot of adjoining column*)

# Infection by Vibrio as a Cause of Disease in Pigs

BY
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## Herd I

IN September, 1955, a call was received to investigate and advise upon scour in piglets, and a litter aged 3 weeks was seen which appeared to be scouring severely. The owner reported that since approximately May of that year every litter born from a total breeding stock of 4 Large White sows had scoured, tnat losses by death within the litters had been high, and that survivors of the litters had remained unthrifty.

These facts were surprising because management was of a very high order and the housing was always kept in a quite remarkable state of cleanliness. The pigs were born and reared indoors with limited access to outside soil runs. The usual preventive measures against anaemia were followed as routine, and until scouring became a problem the incidence of illness had been practically nil, pigs being reared uneventfully to bacon weight in a minimum of time. The sows had been purchased as gilts and the scouring had developed in the second litters.

At the time of the examination the litter presented a " pinched " and unthrifty appearance. Temperatures varied from normal to 105° F. Scouring was quite severe. The stools were quite unformed and varied in colour from bright yellow to an indeterminate grey-green, although the bright yellow was predominant.

*Diagnosis.* Infective scour probably due to *Bact. coli.*

*Treatment.* The litter was treated with oral streptomycin,* and a programme of thorough routine disinfection was adopted. The sows were given therapeutic doses of streptomycin and were washed with antiseptic before entering the farrowing pens.

*Further history.* Scouring ceased in the treated litter within 36 hours and the piglets appeared to be normal. They broke down again within a week, but a repetition of the treatment was less effective. Within a very short time the piglets developed a stunted appearance and the hair began to grow long and coarse; growth was severely checked and the members of tae litter quickly became uneven in size. Over a period of a month there was very little growth at all.

Two other litters born in the late autumn and the early winter repeated the history exactly with scouring beginning at 14 to 21 days of age. Elaborate precautions had been adopted in anticipation of the birth of these litters even to the point that, despite keen night frosts, the temperature of the farrowing pens varied only by 4° F. over each 24 hours. Dosing with streptomycin became less and less efficient until it ceased to be used. No response at all followed the use of a very wide range of other antibiotic and chemotherapeutic agents. Mortality of the piglets was about 30 per cent. and several of the piglets which died were sent for laboratory examination. Despite the most willing and energetic co-operation from the staff of the Ministry's Laboratory at Weybridge, no causal factor was disclosed, and this was so even in the case of 2 piglets which were killed and sent off for examination within 30 minutes of death.

The food used was a nationally known product and, whilst it was not actually regarded as a causal factor, the manufacturer was invited to investigate. Unfortunately his response could not be regarded as co-operative, but an experimental change of food led to no improvement, and thereafter the original diet was maintained.

All subsidiary factors were investigated singly. Iron was given by injection, and a mineral containing trace elements was offered to and taken by the piglets: no improvement followed. Vitamins A, B, C, and D were given individually by parenteral administration without success. It was interesting to note that following the administration of vitamin C the pigs improved markedly for a short period but relapsed once again. Rose-hip syrup was then allowed *ad lib.* until it was clear that it had no beneficial effect.

As the surviving pigs grew older the scouring appeared to cease (usually at about 16 weeks of age) although individual animals still scoured intermit-

* " Streptovex."

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**An Operational Knackery Survey in Devon.**—*Concluded.*

*Tympanites.* The knacker records 108 cases (4 per cent. of 2,550) and this figure also is likely to be reasonably correct. It may be that the mild and late winter of 1955 enabled cattle to remain out longer and hence the considerable increase in incidence which occurred at that time. (See Table XIV, previous page.)

*Tumours.* Only 1 case, an osteoma of the lung, was seen in 300 necropsies. Telangiectasis of the liver are not recorded but were common.

*Acknowledgments.*—Dr. Stableforth, Dr. Withers, and Mr. Rees Evans guided my first footsteps, and the latter generously gave me access to his work prior to its publication. Messrs. Watkins and Fincham at the M.A.A.F. Laboratory, Starcross, spared no pains to make the most of the necropsy specimens which I sent them. I am also particularly appreciative of Mr. Jenkins (Messrs. Tellam's Products Ltd.) and his staff who, by their attitude and assistance, made my work not only possible but indeed pleasant. Mr. Leech of Rothamsted Experimental Station designed Table VIII and his staff, particularly Miss Mary Hills, closely co-operated in the analysis and presentation of the data, and to all of them I express my gratitude.

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tently. Much coughing was observed, and no pig reached bacon weight in less than 30 weeks, the average time required being 35 weeks. The appetites of the pigs were very variable; many pigs ate nothing at all for spells of about 36 hours. Excessive thirst was very obvious.

Some pigs showed sudden acute pyrexia, and frequently developed red to purple discoloration of the ears and sometimes of the thighs. Many pigs developed itchy skins. Of the pigs which developed pyrexia, some responded to penicillin, some to streptomycin, and some apparently only to both drugs given together. One animal would respond only to vitamin $B_{12}$.

Three fatting pigs died without warning, and the *post-mortem* features are given below. Those pigs which did reach the bacon factory graded well, while 2 pigs which were believed to be about to die were sent for casualty slaughter and were passed as excellent carcases.

*Vibrio Infection Diagnosed and Demonstrated.* Mr. M. Gitter of the Veterinary Investigation Laboratory at Weybridge very kindly consulted at the premises. A piglet was killed and taken by car to the laboratory where Vibrio infection was diagnosed.

Subsequent litters were reared artificially and any animals which scoured before or at weaning were treated with oral streptomycin. Development by artificial rearing methods was uneventful with high average weights at 8 weeks of age.

An instance occurred when 2 pigs were being sent to the bacon factory. One pig was a survivor of an infected litter, whilst the other was from the first litter to be reared artificially and which had caught up in growth with the affected litter. The ear marks were known only to the owner. By arrangement, the colon of each pig was collected immediately after slaughter and brought to my premises for examination. Vibrio was demonstrated in the pig from the affected litter but could not be found in the artificially reared pig.

Two assumptions were made: (1) that the infection was persistent; (2) that the artificially reared litter was free from infection.

Two females from the artificially reared litter were therefore kept for future breeding.

At no time did any of the adult breeding stock show any clinical illness, and fertility remained normal.

After 12 months artificial rearing the milk substitute was introduced at a later stage, being adopted not earlier than 3 weeks after the birth of the piglets. This was coincidental with the birth of the first litters from the 2 gilts retained for breeding. The litters of each of these gilts developed scour, and Vibrio was demonstrated in the colon of the piglets which died and in those which were killed. Further litters of the original sows also scoured and Vibrio was demonstrated. Scouring now tended to develop earlier in life, in the first few days in fact, and to be resistant to streptomycin. It is believed that underdosing with streptomycin took place—chiefly by adding the drug to the food and drinking water—but whatever the cause, a strain of Vibrio resistant to streptomycin appeared to have developed, and this was coupled with an increase in the virulence of the infection.

**Herd II**

Recently, a similar condition was found in another pig herd in this area which carried some 20 breeding sows. Professional advice was sought in early April, 1957. The herd was free of disease until December, 1956, but since then every litter which was born had scoured. Mortality per litter averaged 40 per cent. whilst the survivors remained very unthrifty; all were undersized and varied markedly in size and weight. One piglet was killed and Vibrio was demonstrated. All pigs born before December, 1956, were free from illness and thrived normally. No breeding animal, male or female, showed any illness at all. It was interesting to note that a litter born to an old sow out of doors in an enclosure of fresh ground remained healthy until 5 weeks of age when scouring developed. Vibrio was demonstrated in a member of this litter and it was believed that infection was carried to the sow and litter by attendants. In this herd the same features of failure to obtain satisfactory results to treatment were apparent.

Several animals were slaughtered in this herd as part of a culling policy, and the animals included:—

(1) The stock boar, (2) 3 gilts in the litters of which Vibrio had been demonstrated, (3) the old sow mentioned above, (4) a fat pig which had been in the same pen as the 3 gilts.

No lesions were found in any of these carcases other than a slight thickening of the mucosa of the caecum and colon and an exaggeration of the ridging. Vibrio was demonstrated in each of these animals.

**Summary of Infection in 3 Other Herds**

During May, 1957, 3 other outbreaks were experienced in which infection had taken place in older pigs.

In 1 case no breeding at all was carried out; the pigs were purchased in litters of 10 to 12 weeks of age directly from breeders whose stock was known to be healthy. The picture presented was that of pigs whose standard of health was just below normal. It was found that approximately a fortnight after entry to the premises the animals' appetite was reduced and excessive thirst became evident: urine was sought and consumed quite greedily. Scouring was not a feature unless thirst was satisfied, and then the stools became distinctly loose. The owner had also found that scour developed if the pigs were fed on the "sow and weaner" type of food. Accordingly, the pigs were fed on a diet of lower protein value, 16 per cent. protein being the maximum value the pigs could tolerate. The pigs required 30 weeks to reach bacon weight.

It had been found that when pigs were brought into the premises at 8 to 10 weeks of age, the above symptoms were much more pronounced, and pigs were therefore purchased at not less than 10 weeks and preferably at 12 weeks of age. Sporadic sudden deaths occurred, and 1 pig had died the evening before the herd was examined. The immediate cause of this death was pneumonia and pericarditis: no inflammatory change was present in the gut but features suggestive of Vibrio infection were present in the large intestine. Vibrio was demonstrated.

Another outbreak occurred in a herd which was

self-contained and where the incidence of illness was negligible. A batch of 27 pigs aged 11 weeks developed scour, and treatment with oral streptomycin appeared to control it. A week after this treatment scouring developed again in about one-third of the animals in the batch. All pigs showed a distinct check in growth, but those which continued to scour rapidly lost condition and several developed a staggering gait. Several deaths occurred and Vibrio was demonstrated in each case.

The most recent outbreak which has been experienced took place in a large herd where both breeding and purchasing of stores was followed. It had been noticed that from time to time odd pens of pigs did not thrive and that conversion rates were variable. Sporadic deaths at all ages were a feature, many of these deaths showing very indeterminate *post-mortem* lesions. Recently about half the animals in a pen of 30 pigs became ill with mild scour, and showed symptoms of lassitude, thirst, and a staggering gait. Three died and Vibrio was found in each. Twelve other pigs which were ailing were killed and Vibrio was found in each. No lesions indicative of other disease were found. In this herd Vibrio has now been found in pigs of all ages from 11 to 25 weeks.

### General Summary of Clinical Features

The clinical features appear to vary directly with the age of the pig at the time of infection. In the case of baby pigs suckling the sow, scouring with bright yellow stools occurs at any age from 3 days onwards. Growth suffers a severe check and the piglets present a pinched, stunted appearance. The hair becomes coarse, and a common feature is mild swelling of the eyelids. This swelling is much less than that seen in bowel oedema, and the appearance is rather that the eyes seem small. Survivors of affected litters remain unthrifty, show indeterminate vague illness, poor appetite, and excessive thirst, and they usually require at least 30 to 35 weeks to reach bacon weight. Temperatures are variable with no recognisable average rise. Litter mortality varies from 30 to 50 per cent.

Infection at 8 to 10 weeks gives rise to scouring and lassitude with rapid loss of weight. A staggering gait is frequently seen, and appetite is diminished although it is not usually lost completely. The pigs remain in a most unthrifty state. When infection occurs at 10 to 12 weeks a similar but much less spectacular syndrome is observed, while infection at 12 to 18 weeks gives rise to little evidence of actual illness other than diminished appetite and excessive thirst, together with a variable degree of lassitude. Pigs infected after the age of 24 weeks have never been found to show any clinical illness at all.

Over a period of 2 years every litter born to 4 sows and 2 gilts have developed the infection. These dams have been shown to be infected at the time of slaughter, and it would appear that the adult remains a carrier.

### *Post-mortem* Lesions

*Piglets*

There is excess fluid in the pericardial sac. In many cases the heart muscle shows light-coloured areas, together with areas of a purple colour. The areas are not circumscribed but shade to normal colour at the edges. The liver is usually enlarged and the majority of cases show light-coloured areas similar to those found in the heart muscle. The stomach is usually normal.

Some 20 per cent. of the cases examined have shown no lesions in the intestine. Where lesions are present, however, the small intestine shows a mild catarrhal enteritis. The most marked changes are found in the caecum and colon. There the mucosa is thicker, softer, and much more ridged than normal, the ridges being small and numerous. When present, a recognisable inflammation occurs in the form of a variable number of isolated areas, $\frac{1}{4}$ to $\frac{3}{4}$ inch in diameter, rather than as a general reddening.

The mesenteric lymph nodes are much enlarged but show no discoloration, in fact, probably because of their increased size, they appear whiter than normal.

*Adults*

Death is usually sudden and unexpected. Heart lesions are similar to those in piglets. In the lungs, even when pigs have been affected with much coughing during life, there are either no deviations from normal or at the most an appearance similar to that ascribed to mild virus pneumonia. Liver changes are similar to those in piglets.

In the stomach there is either no colour change or else an acute gastritis is found with purple discoloration chiefly in the pyloric area. In either case the mucus is increased in quantity and, although fluid, is peculiarly tenacious in texture. In the majority of such cases little food has been found in the stomach but the particles of food are very dark in colour and very gritty: this feature was always observed although the material fed to the animals had been of high quality and finely ground.

In the intestine features similar to those described for piglets have been found in some 50 per cent. of cases. It has been noticed, however, that recognisable inflammatory changes decrease with the advancing age of the pig, for example no inflammatory change has ever been found in a slaughtered sow or in a pig slaughtered at bacon weight. In all cases the mucosa of the caecum and colon has been thickened, and has become soft and much more ridged than normal. The mesenteric lymph nodes are distinctly enlarged but are not discoloured.

### Method of Diagnosis

A portion of the colon, preferably from the first 6 inches, is selected: in any case a portion containing small reddened areas appears to be most productive of the Vibrio. The gut is well washed and dried by filter paper. A portion from the depression between 2 ridges is selected and a small piece to include the submucosa is cut off with scissors; this is picked up on a hot loop and smeared on a slide. The smear

is dried in air but not fixed by heat. Staining is carried out by using carbol-gentian-violet or dilute carbol-fuchsin for 30 seconds or less, and the smear is then washed and dried again in air without heat. Vibrio is found in varying numbers, either singly or in small groups, the latter usually being near groups of tissue cells. The organisms appear as spiral, S-shaped, comma, or seagull forms. In a positive case they are so sufficiently numerous that no difficulty has been experienced in finding them.

### General Conclusions

1. The pattern of disease varies directly with the age of the pig at the time of infection. All stages occur from a serious illness with a high mortality rate in piglets to a carrier state with no clinical symptoms in the adult.

2. Infection appears to be easy and it seems to spread quickly through a herd.

3. Treatment appears to be unsuccessful if the piglets continue to live with the sow. Early weaning and artificial rearing should be adopted. Under these conditions treatment of the complete litter with oral streptomycin is efficient, provided the drug is given early and in full therapeutic dose to each individual animal.

4. Infection appears to be persistent in the breeding stock and the writer believes that a policy of clearance of all stock should be envisaged as the only method likely to eradicate the infection in its entirety.

5. The method of introduction to a herd remains obscure.

6. For diagnostic purposes it is of paramount importance that no delay should occur in the examination of the gut. It has been found that if a delay of longer than about 12 hours takes place before smears are made and stained, a negative diagnosis is likely to result.

7. Vibrio has been found in constant association with the disease pattern described. There is as yet no bacteriological proof of its rôle as the active pathogen.

*Acknowledgments.*—I should like to express my most grateful thanks to the members of the Veterinary Investigation Centre at the Laboratory of the Ministry of Agriculture, Fisheries and Food, Weybridge, and in particular to Mr. M. Gitter for his active help in diagnosis and to Mr. A. Shand for his very helpful suggestions. I would also thank the owners of the various herds for their co-operation, particularly Mr. and Mrs. Smith of Wimborne who carried out all the suggestions so well and who spent many long hours dosing numerous pigs.

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# The Scientific Exhibition at Congress

**From a Correspondent**

A FEATURE of this year's Congress at Cambridge was the unusually large scientific exhibition, contributed by research workers from many parts of the country. Over 100 separate demonstrations were on view throughout the week in the large Elementary Laboratory of the Department of Zoology (by kind permission of Professor Sir James Gray, C.B.E., M.C., F.R.S.). They attracted a substantial attendance. The display was impressive for the range of fields covered. The subjects were not confined to veterinary medicine and surgery but embraced all their underlying sciences—anatomy, physiology, animal housing and nutrition, pathology, bacteriology, virology, and therapeutics.

It was very pleasing to see how much thought and hard work had been put into the demonstrations, and the expert and effective manner in which, for the most part, they were presented. Problems faced by the demonstrators were suggested by the differences in their exhibits. Some tried to make their displays general enough to be interesting to everyone, and had to restrict the amount of information to a minimum. Others presented all the factual information they had, and tended to swamp the viewer. The latter approach is, of course, admirable, and indeed necessary in scientific papers, but can make a demonstration overpowering. Happily, nearly all the exhibitors chose a middle course, but there were a few who took either extreme and their exhibits lost in effect.

The Ministry of Agriculture Veterinary Investigation Centre had an exhibit on "The Veterinary Investigation Centre's Diagnostic Methods" arranged by Menzies and his colleagues. The purpose of this display was to persuade those using the diagnostic service to send in better samples and thus get full value from the service. The lay-out, though simple, caught the eye. The point was clearly made, and

Exhibit of (a) Vitamin A deficiency and epithelial response in poultry. (b) The effect of early weaning of calves on the epithelial development of the rumen. (c) The effect of marginal trace element deficiency on growth and skin lesions in the pig. By Food Research Department, Unilever, Ltd.

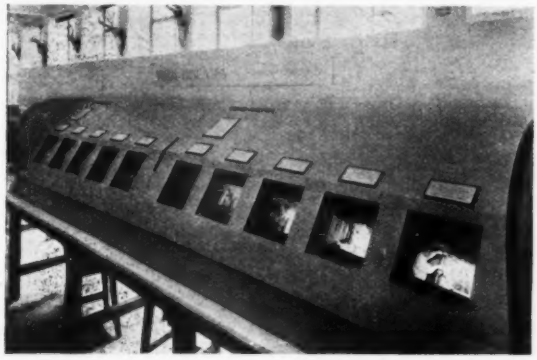


Exhibit of tissue culture and "disease free" animals, by A. O. Betts; W. I. B. Beveridge and P. H. Lamont.

type-written sheets were provided to be taken away and read at leisure.

A number of other excellent demonstrations by the research workers of the Central Laboratory at Weybridge and the Veterinary Investigation Centres were shown also. Two of particular note were "Rhinitis in Pigs" by Done, and "Parasitic Gastritis" by Michel. The latter exhibit was equipped with a working model which transferred water from reservoir to reservoir and represented the stages in parasitic infestations.

The veterinary schools contributed well, though it was disappointing not to see more from Liverpool, Edinburgh, and Bristol. Ottaway and Ashdown of Bristol took as subject "Adherence between penis and sheath in the Ox," and gave some interesting information on the development of this condition. Appleby of Edinburgh showed some of his findings on mycosis of the respiratory tract in the world-famous Edinburgh penguins. Another excellent display was that of Offord and Sainsbury of the Royal Veterinary College, London, on housing. It showed common faults in the farm buildings of Great Britain and the ideal remedy for these faults; the presentation was in the form of models and photographs. Other good exhibits from the London school were a comprehensive survey of neoplasia by Cotchin,

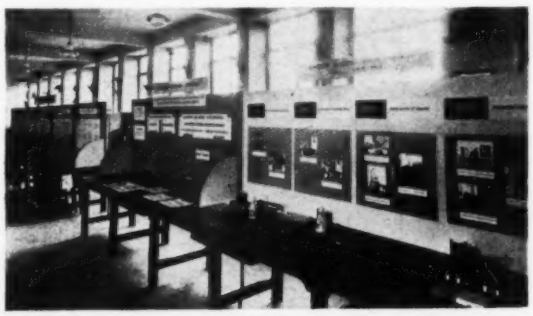


Exhibit by the Ministry of Agriculture, Veterinary Laboratory, Weybridge, of preparations of freeze-dried strain 19 vaccine and work undertaken for the Therapeutic Substances Order by E. C. Hulse.

and a display of coloured transparencies by Lewis, illustrating clinical cases. Cotchin is an acknowledged expert and his contribution contained much valuable information.

The Cambridge School was on its home ground and thus had a great advantage. Workers at the School provided 24 different demonstrations covering horses, sheep, pigs, dogs, rabbits, poultry, and wild birds. So many of these were excellent that it is unfortunate to be able to mention only a few. Butler, Chu and Newnham had a large demonstration on their studies on the respiratory diseases of poultry. This excellent display was divided into clearly labelled sections, each of which dealt with a different aspect of the subject, and the whole was practically a refresher course on chicken respiratory diseases. A display of teaching models by Richardson showed in how many subjects of veterinary education models can be used as a visual aid.

Mortimer's exhibit "Bromosulphophthalein liver excretion tests" explained what the test is and how it may be used to evaluate liver function in, say,

Exhibit of the Pathology Section of the Zoological Society of London by R. N. Fiennes.

fluke infestation in sheep: one non-biochemist at any rate feels he knows more about the subject now.

An exhibit on "Diseases of Wild Birds" by Jennings and Soulsby formed an interesting demonstration on a subject unfamiliar to most of us. The use of coloured transparencies in this and other demonstrations from the Cambridge School heightened their effect.

Pigs have been a major interest at Cambridge for some time now and several good exhibits on this animal were presented. Betts, Beveridge and Lamont were showing the details of the American technique for producing "disease-free" pigs by hysterectomy, while Soltys and Spratling had a concise demonstration on "Infectious Cystitis and Pyelonephritis in Pigs." A very clear and explicit display was that by Taffs on "Immunological Studies on *Ascaris lumbricoides*."

Dr. Joan Keilin had a good demonstration of general interest on the "Distribution of Copper in the Animal Kingdom."

The University of Glasgow Veterinary School was represented by Campbell's "Canine Toxoplasmosis."

Exhibit on (a) Canine Virus hepatitis in adult dogs and sucking puppies. (b) The difficulty of diagnosing canine distemper, by N. M. Larin, and hip dysplasia in the dog, by W. B. Singleton, of the Animal Health Trust Canine Centre.

A point of this display was the provision of slides for anyone who wished to have one for reference.

Moore and Rowson of the A.R.C. Unit of Reproductive Physiology and Biochemistry at Cambridge did the Congress the honour of giving the results of some experiments on ovum transplantation before these had been published elsewhere. One could not but be impressed by their simplified description of what must be a most difficult technique. Short, of the same A.R.C. Unit, had a good demonstration on the part that progesterone plays in reproductive physiology. It was one of a number which showed the extent of the information that Dr. Mann's team produced. The facts on progesterone throw more light on the mechanisms of pregnancy and parturition and force us to alter some past theories.

The Animal Diseases Research Association, Moredun Institute, sent exhibits on 2 of the more important sheep problems of to-day. The " Enzootic Abortion " demonstration by Foggie and Stamp emphasised the ecology of the disease and pointed out when transfer of infection occurs. The aim of the practitioner to control, rather than to treat, depends on this type of knowledge. Brotherston, Nisbet and Watt showed us the extent to which Johne's disease is being studied at the Moredun; Rankin, of the A.R.C. Field Station, Compton, also had a demonstration on Johne's disease in rabbits.

The Animal Health Trust stations were well represented. Larin of the Canine Centre gave a clear picture of canine virus hepatitis and also showed that all the difficulties in distemper diagnosis in the dog have not been solved. Singleton's display on hip dysplasia in the dog was useful to the small-animal practitioner. The Equine Research Station demonstration was under the general heading of " The Heart, Blood, and Circulation of the Horse." Some sections of this presented much basic physiological information which took some time and effort to assimilate. Of most practical importance was the demonstration of haemolytic disease in new-born foals, by Archer and Miller, a subject featured in " The Archers " of B.B.C. fame.

Harry of the Houghton Poultry Research Station, had a demonstration on the egg-borne diseases of poultry. This was another of the very good displays; it enumerated the egg-borne diseases and described how they might be controlled by good hatchery arrangements and by the use of aerosols.

The Research Institute (Animal Virus Diseases) at Pirbright presented an anonymous display and one can only praise a good collective effort. The subject of foot-and-mouth disease receives such irresponsible comment from time to time in the national press that one might be misled into thinking that the veterinary profession is trying to muddle through on the control of this disease. What a pity the agitators do not know the amount of work being done at Pirbright, some of which was on show in their demonstration.

Under a physiological heading may be grouped the contributions from the Rowett Research Institute, Bucksburn, by Ash and Kay, on the stomach of the sheep; from the National Institute for Research in Dairying, Shinfield, by Briggs and Lev, on the gut flora of the chick; and from the A.R.C. Field Station, Compton, by Brownlee, on the development of the gastrointestinal tract in cattle and rats.

The Zoological Society of London (Oliver G. Jones) had one of the largest exhibits. The section on their new hospital block was of great interest, showing how quarantine and sick-bay facilities could be maintained under one roof and yet be kept separate. The use of anaesthetic agents allied with crush cages in restraining the more intractable animals showed how suffering has been eliminated in zoos of to-day. A section on the pathological conditions encountered at the London Zoo was of comparative interest, though this interest would have been increased for the veterinary practitioner if there had been some figures on the relative incidence of the various diseases and the different causes of death of animals in captivity.

" A.I. Movement " was the title of the demonstration by Smith of the Milk Marketing Board. This gave a good over-all idea of the position of A.I. at the present time.

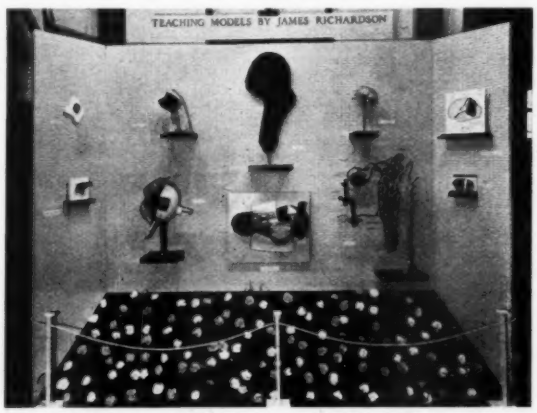
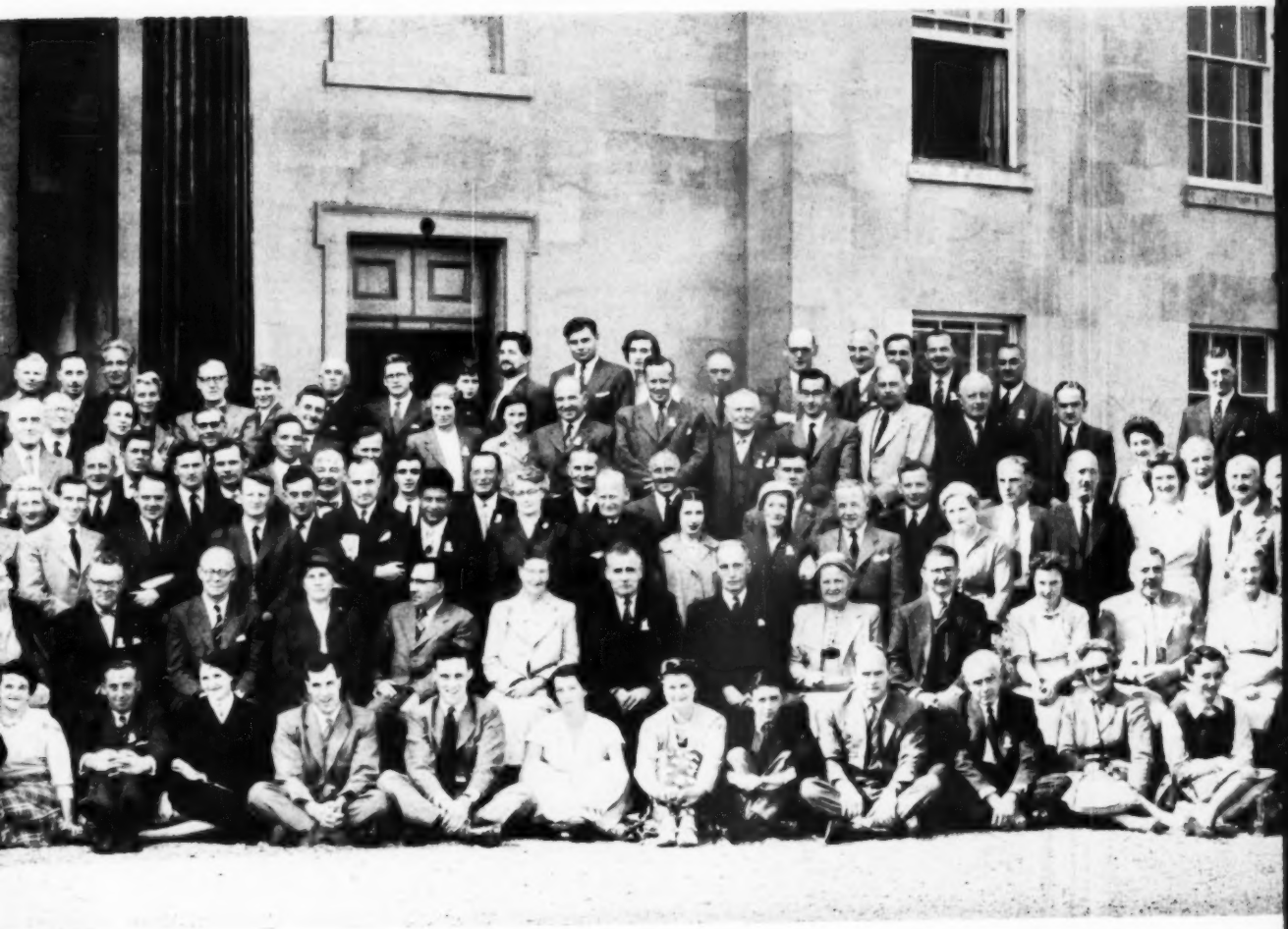



Exhibit of Teaching Models, by James Richardson of the School of Veterinary Medicine, Cambridge.

BRITISH VET

**BRITISH VETERINARY ASSOCIATION, ANNUAL CONGRESS, CAMBRIDGE, AUGUST, 1957**



work was required before such processes could be regarded as commercially applicable.

In the treatment of frozen whole-egg pulp, to eliminate Salmonellae food poisoning, there was good promise, in that the damage to the product so far observed had been relatively small and that the advantage to be gained from successful treatment would be considerable.

## ACCESSIONS TO THE R.C.V.S. LIBRARY

APPLEYARD, R. "Ducks." 2nd ed.
BULLOCK, F. "Handbook for Veterinary Surgeons." 2nd ed. 1930.
Plant Protection Conference, 1956. 1957.
GEIGY. "Scientific Tables." 5th ed. 1956.
Rowett Research Institute. Collected papers, **13.** 1957.
O.E.E.C. "Breeding methods for cattle, pigs and poultry in the U.S." 1957.
O.E.E.C. "Control of warble-fly infestation." 1957.
O.E.E.C. "Foot-and-mouth disease viruses." 1957.
W.H.O. "Specifications for pesticides." 1956.
GARNER, R. J. "Veterinary Toxicology." 1957.
SAUNDERS, B. C. "Phosphorus and Fluorine." 1957.
EIGSTI, O. J., and DUSTIN, P. "Colchicine." 1955.
TOMPCETT, D. H. "Anatomical techniques." 1956.
DRABBLE, J. "Text-book of meat inspection." 6th ed. 1956.
Bloodstock Breeders' Review. **45.** 1956.
ROWETT, H. G. Q. "The rat as a small mammal." 1957.
BROWN, M. E. *ed.* "The physiology of fishes." **1.** Metabolism. 1957.
SWIFT, S. *ed.* "Sanitary officers' practice: Food Inspection." 1955.
Annual reports on the progress of chemistry. 1956. **53.** 1957.
Lectures on the scientific basis of medicine. **5.** 1955-6. 1957.
J. Royal Agricultural Society of England. Index to vols. **87** to **115.** 1957.
WELLS, B. B. "Clinical pathology." 2nd ed. 1956.
JEFFERSON, S. "Radioisotopes, a new tool for industry." 1957.
Butterworth's Annotated Legislation Service Statutes Supp. 93.—The Food and Drugs Act, 1955. 1956.
LEE, D. H. K. "Climate and economic development in the tropics." 1957.
W.H.O. Bulletin **10.** No. 5. Rabies.

## EQUINE SENSIBILITY

Readers may be entertained by the following letter published in *The New Statesman* (September 14th) over the signature of Mr. T. St. John Barry, and quoted here by kind permission of the Editor.

"The £8,046 Wolfenden Report doesn't seem to go much further than the opinion, said to have been expressed many years ago by Mrs. Patrick Campbell: 'I don't care what they do as long as they don't do it in the streets and frighten the horses!'"

## FIFTY YEARS AGO

In the course of a speech at the opening of a new session of the Royal Veterinary College, Sir John M'Fadyean recalled the names of several great veterinarians whose work and contributions to the life of the community had carried them far beyond the confines of their own profession. He said:—

"I think I am right in saying he (Moorcroft) was the first Englishman who explored Central Asia, where he died, and his foresight was such that he concluded, without reference to the Government of India, a treaty with the Chief of the Punjab, which placed that important country under British protection. (Cheers.) His action was repudiated by the Government, and 40 years later, what Moorcroft by tact and personality had secured, cost us two of the most severe campaigns ever fought by a British Army. John Gamgee, besides being a brilliant inventor, was the most able and advanced veterinary surgeon of his day. Gowing, who practised in Camden Town, invented the Semaphore system of signalling on railways and the solid wheel for carriages, neither of which have yet been displaced; while Dunlop, a name known to some millions, found time, in the midst of a busy veterinary practice, to bring his ingenuity to bear on his boy's bicycle, with the result that he revolutionised traffic on wheels. (Cheers.) If there is an artistic side to your nature cultivate it, and emulate Adrian Jones, a retired Army Veterinary Officer whose modelling of man and horse seen outside the War Office at Whitehall is the best in this country, and probably in any other. (Cheers.) Municipal and civil life possesses attractions to those of organising capacity and sterling worth. One of London's recent Mayors belonged to the veterinary profession, and there are several who are magistrates. These I admit are side issues in a professional life, but I indicate them as examples of unrestricted adaptability, energy, ability, and genius."

## THE BLUE CROSS

Through the courtesy of the secretaries of this well-known animal welfare society we recently received some notes arising from their annual report. We quote, below, an extract which may be of interest to our readers.

"What we should like to see, where this is practicable, would be the kind of relationship between animal welfare societies and veterinary surgeons which existed between private doctors and voluntary hospitals before the human medical services were nationalised. By arrangement, doctors were able to put their patients in voluntary hospitals and use the operating theatres, equipment, and staff. There was no competition between hospitals and private doctors. They were mutually helpful and indeed indispensable to one another.

"The Blue Cross believes that the provision of such hospital facilities by animal welfare societies would be a very valuable contribution to veterinary medicine, and we shall have a unique opportunity of being the first to institute such a service in London.

"It will obviously be a great advantage to the majority of private veterinary surgeons to be able to use a perfectly equipped operating theatre—the most modern anaesthetic equipment and X-ray unit, etc.—with the assistance of trained staff, and be able to leave their patients in skilled hands until it is safe for them to go home.

"Because of the resources and facilities at its disposal, an animal welfare society should not only provide hospital services where this is practicable, but also use the knowledge it acquires by handling scores of thousands of animals to improve conditions in which animals can be kept. For example, wood is generally quite unsuitable for kennelling. It harbours germs, deteriorates through fouling, and becomes noxious as well as dangerous. It is practically impossible to keep clean, let alone to sterilise. The Blue Cross has now designed, with the help of veterinary

experts, engineers, and our architects, kennel units made of steel and lined with a special composition with automatic drainage. These can be cleaned and sterilised with high-pressure steam.

"No one pretends that the invention of such units will eliminate the fearful menaces of distemper and hard pad, but the risk of infection spreading will certainly be reduced. In the past, stray dog kennels were never free of those diseases."

## THE REGISTER OF VETERINARY SURGEONS

The undermentioned graduates were admitted to membership of the Royal College on the dates shown:—

Ashcroft, Roy Alston, Schoolands Farm, Woodfold Park, Mellor, Blackburn, Lancs, September 25th, 1957, B.V.SC. (LIV.); Crabb, Philip John, High Street, Packington, Ashby-de-la-Zouch, Leics, September 25th, 1957, B.V.SC. (LIV.); Dickinson, Leslie Grant, "Carleton," Flat 3, Lyndhurst Road, Liverpool, 18, September 25th, 1957, B.V.SC. (LIV.); and O'Malley, Mary Catherine Bernardette, 47, Kingsway, Waterloo, Liverpool, 22, September 25th, 1957, B.V.SC. (LIV.).

## R.C.V.S. OBITUARY

We record with regret the deaths of the following members of the profession:—

HEDLEY, John Franklin, The Hollies, Nash, Bletchley, Bucks. Graduated Royal Veterinary College, London, December 20th, 1927. Died September 28th, 1957, aged 64 years.

SHORT, Percy G., 34, Clarke Street, Ipoh, Perak, Malaya. Graduated Royal Veterinary College, London, December 17th, 1902. Died August 1st, 1957, aged 78 years.

### Supplementary Veterinary Register

FLECK, Paul Kintspark, 44, Ombersley Road, Worcester, Veterinary Practitioner. Registered November 28th, 1949. Died September 16th, 1957, aged 51. A service was held at Barbourne St. Stephens Church, Worcester, at 2.15 p.m. on September 19th. The following members of the veterinary profession attended the service and the interment at Astwood Cemetery, Worcester: Messrs. K. W. R. Jones, A. J. Skea, and Walter Scott. Mr. Fleck leaves a wife and four children.

HOPKINS, John (Charles Richard), 271, Osmaston Road, Derby. Died August 25th, 1956.

MILTON, Leslie Jacob, 6, Greenfield Crescent, Patcham, Brighton, 6, Sussex. Registered in the Supplementary Veterinary Register on October 16th, 1950. Died July 20th, 1957.

## PERSONAL

### Births

ANDREW.—On September 23rd, 1957, to Sheila (*née* Bateman) and Angus S. Andrew, M.R.C.V.S., of 251, Wellington Road North, Heaton Chapel, Stockport, a second son, Stuart Angus.

DICK.—On July 31st, 1957, to Mr. and Mrs. D. C. Dick (late of Chard, Somerset), at 13, Canberra Street, Moe, Victoria, Australia, a daughter, Diana Charlotte.

LE CHEMINANT.—On September 23rd, 1957, in Guernsey, to Natica and David Le Cheminant, M.R.C.V.S., of Orange Lodge, King's Mills, a daughter, Maxine Louise.

MALLALIEU.—On September 8th, 1957, to Ruth, wife of John Milne Mallalieu, B.SC., M.R.C.V.S., of 8, Appleton Gate, Newark, a daughter, Cathryn Ruth.

### Engagement

KING—SYMES.—The engagement is announced between Donald Keith King, M.R.C.V.S., younger son of Mrs. W. A. King, of Tor View Avenue, Glastonbury, and the late Mr. W. A. King, and Vanessa Jane, younger daughter of Lt.-Col. B. G. Symes, D.S.O., O.B.E., and Mrs. Symes, of Brook Cottage, Cerne Abbas, Dorset.

**Dr. A. W. Stableforth** will be attending the third meeting of the joint F.A.O./W.H.O. Expert Committee on Brucellosis in conjunction with the Fourth Inter-American Congress on Brucellosis, which are being held in Lima, Peru, from October 7th to 14th inclusive.

## COMING EVENTS

### October

8th (Tues.). Golden Jubilee Dinner for members of the North of Ireland Veterinary Association at Woodbourne House Hotel, Suffolk. Dunmurry, 7.30 p.m.

9th (Wed.). Autumn Meeting of the Society of Women Veterinary Surgeons at the Veterinary Investigation Centre, Coley Park, Reading, 11.30 a.m.

10th (Thurs.). Ordinary Meeting of the Ayrshire Veterinary Association in the Ailsa Lounge, Station Hotel, Ayr, 2.30 p.m.

11th (Fri.). Annual Dinner and Dance of the Royal Counties Veterinary Association at the Randolph Hotel, Oxford, 7.30 p.m.

16th (Wed.). Meeting of the Section of Comparative Medicine, Royal Society of Medicine, at the Society's House, 5 p.m.

Evening Meeting of the Dumfries and Galloway Division at the Crown and Mitre Hotel, Carlisle, 7.30 p.m.

Meeting of the Southern Counties Veterinary Society at the Royal Bath Hotel, Bournemouth, 7.30 p.m.

17th (Thurs.). Ordinary General Meeting of the South-Eastern Veterinary Association at the Royal Star Hotel, Maidstone, 2.30 p.m.

Annual Dinner and Dance of the Yorkshire Veterinary Society at the Cairn Hydro, Ripon Road, Harrogate, 7.30 p.m.

Meeting of the British Small-Animal Veterinary Association at the Queens Hotel, City Road, Chester, 8.30 p.m.

18th (Fri.). Annual Dinner Dance of the South Wales Division at the Seabank Hotel, Porthcawl.

General Meeting of the Mid-West Veterinary Association at the Berkeley Café, Clifton, 2.30 p.m.

23rd (Wed.). Meeting of the R.A.V.C. Division at the Royal Veterinary College, London, N.W.1, 2.15 p.m.

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# Congress Attendance List, 1957

The following is a list of those members of the Association who signed the Attendance Register. We regret that there are a few omissions where we were unable to decipher signatures.

Abbot, S. G., Adams, S. H., Anderson, J. A., Appleby, Dr. E. C., Archer, Dr. R. K., Arthur, T. H., Ashdown, R. R., Ashton, P. K., Atkinson, Captain G., Auchnie, J. A., Barber-Lowmax, J. W., Barnett, Colonel G., Barr, J., Barron, Dr. N. S., Barton, W. F., Basinger, D., Bayliss, J. B., Beaton, Captain D., Beaton, W. G., Beach, J. E., Beaumont, G. L., Beesley, C. J., Begg, H., Behrens, Dr. H., Bell, R. L., Bennison, Colonel J. C., Betts, Dr. A. O., Beveridge, Professor W. I. B., Beynon A. G., Black, N. M., Blackburn, Dr. P. S., Blair-Fish, P. R., Blanchard, J. H., Bligh, P. S., Boddie, Professor G. F., Botcherby, W. C., Bowden, R. S. T., Boyce, D., Bracewell, C. D., Brancker, Miss W. M., Bridge, P. S., Brocklesby, D. V., Brotherston, J. G., Brown, H. M., Brown, J. A., Brown, P. L., Browne, D. J. W., Brownlee, A., Brownlie, W. M., Bryson, D. K., Buckler, G. K., Bullen, Dr. J. J., Burgon, E. A., Burrow, Professor H., Buxton, Dr. J. C., Byrne, F. A., Bywater, H. E., Cairns, J. T., Calder, H. A. M., Calderbank, G., Callender, E. R., Cameron, D., Cameron, R. S., Campbell, R. S. F., Carmichael, R., Cartwright, C. W., Chadwick, Major C. R., Chapman, A. S., Cho, C. N., Clark, C., Claxton, B. A., Clay, H. A., Clegg, F. G., Cochran. F. R., Cook, J. P., Corrigall, E. R., Cotchin, E., Cowie, Dr. A. T., Craig, S. A., Crawshaw, H. A., Cripps, J. H. H., Cross, Dr. B. A., Crowhurst, F. A., Dall, J. A., Dalton, P. J., Daniel, Mrs. Brenda B., Daniel, W. J., Darne, A., Davies, D. B., Davies, Dr. G. O., Davison, W. S., Dawson, A. H., Dayus, C. V., Denholm, T. C., Dickson, C., Done, J. T., Doran, G. P., Dougal, L., Douglas, J. W., Dow, J. K. D., Downham, K. D., Downing, W., Duffy, T. P., Duguid, I. M., Dunn, Dr. A. M., Eden, Mrs. R., Edwards, J. G., Edwards, Dr. S. J., Evans, E. T. Rees, Evans, J. T. R., Evans, K. G. D., Fawcuss, E. W., Ferguson, C. M., Field, H. I., Fiennes, R. N., Fleming, J. A., Foden, C. A., Foggie, Dr. A., Ford, E. J. H., Ford, R., Forteath, A. D., Fraser, Dr. A. C., Frost, H., Fulton, A. M., Fussell, M. H., Gambles, R. M., Gellatly, J. B. M. Gibson, E. A., Gibson, W. W. C., Glover, Dr. R. E., Glover, Dr. T. D., Gold, T. N., Goodwin, Dr. R. F. W., Gordon, Dr. W. S., Gould, G. N., Gourley, J., Graham, A. M., Green, L. H., Green, Dr. R. A., Gregg, J. R., Greig, Dr. W. A., Groves, T. W., Grunsell, Dr. C. S., Gunning, O. V., Hall, Dr. L. W., Hambrook, C. L. E., Hancock, J. L., Harbinson, Mrs. M., Harbour, H. E., Hardwick, E. F., Hare, Dr. T., Harley, W., Harnett, P., Harris, Major D. G., Harrow, W. T., Hart, C. B., Harte, J. E., Hawksley, M. B., Hay, T., Hebeler, H. F., Hector, A., Henderson, G. N., Hewetson, H. R., Hickman, Lieut-Col. J., Hignett, P. G., Hignett, S. L., Hill, K. J., Hodgman, S. F. J., Holmes, Dr. J. R., Holroyd, H., Hopwood, Miss Joan B., Horn, W. R. S., Howat, G. B. B., Howell, Mrs. D., Howie, T. W. T., Huck, R. A., Hughes, J. H. M., Hughes, T. W., Hunter, W. K., Ingram, J. McConnachie, Irfan, M., Ironside, I. B. R., Jarrett, Dr. W. F. H., Jennings, A. R., Jennings, S., John. F. V., John, H. M., Johnston, A., Johnston, D., Johnston, J. B., Jolly, D. W., Jones, Bruce V., Jones, Eric B., Jones, Dr. E. W., Jones, J. E. T., Jones, Oliver G., Jones, W. O., Joshua, Miss Joan O., Kelly, D. F., Kelly, Mrs. K. G. R., Kelly, Professor W. R., Kerruish, D. W., Kershaw, G. F., Knowles, T., Lamont, Professor H. G., Lamont, P. H., Lancaster, W. E., Langley, J. A., Lauder, I. M., Lauder, J. S. J., Lawfield, F. G. C., Leach, P. A., Leiper, J. W. G., Little, E. W., Littlewort, M. C. G., Lloyd, J. R., Lloyd, M. K., Logue, F. W., Loosmore, R. M., Lornie, D., Lovell, Professor R., Low, J. J., Lucas, J. M. S., McCartney, W. D. J., McCrea, C. T., Macdonald, D. C., McFerran, J. B., MacGregor, R., MacGregor, W. T., McIntyre, I., Mack, Roy, McKay, W. M., Macleod, W. J., Maclure, W. B., McNabb, T., McNish, N. C., Macrae, Major R. I., Macrae, R. R., Macrae, W. D., McShane, H. G., Mahaffey, L. W., Makinson, J. B., Manton, Y. J. A., Marshall, A. A., Marr, A., Marr T. S., Martin, B., Martin, R. D., Mason, G. S., Matheson, J. A., Matthews, H. T., Melrose, D. R., Menzies, D. W., Messervy, Professor A., Miller, W. C., Milne, J., Milton, J. A., Mitchell, P. J., Mitchell, Professor W. M., Morgan, W. J. B., Moffat, Lieutenant S. C., Montgomerie, Dr. R. F., Morris, E. G., Mowat, G. N., Muir, G. S., Murphy, C. T., Newsam, I., Newsam, T. J., Nisbet, J., Nixon, G., Noble, R. J., Noble, W. A., Norval, J., Offord, E. C., Oliver, D. F., Oliver, G. M. G., O'Neill, A. G., Orfeur, N. B., Orr, D. E., Osborn, Miss Joyce, O'Sullivan, K., Ostler, D. C., Parish, W. E., Parry, Mrs. B. G., Parsons, Miss Ursula, Pay, T. W. F., Payne, J. M., Pearce, J. W. R., Pellam, R. H. T., Phillips, Captain R. N., Phillipson, A. T., Philip, J. M., Pierce, Dr. A. E., Pinsent, P. J. N., Plenderleith, J., Pollock, N. F., Pool, W. A., Proctor, F. J., Pronger, Mrs. Marjorie, Pugh, C. J., Pugh, Dr. L. P., Pugh, Dr. P. S., Pugh, R. J., Pyke, B. N., Raeside, H., Rankin, Dr. J. D., Reid, J., Reid, N. R., Rex, M. A. E., Reynolds, E. B., Ritchie, J. N., Roberton, D. P., Roberts, D. T., Robertson, Professor A., Robinson, C. E., Robson, W. J. B., Rogers, Mrs. A. G., Rogers, M. J. H., Rossdale, P. D., Rowlands, W. T., Rowson, L. E., Runciman, J. P., Russell, G. H. H., Sainsbury, Dr. D. W. B., Sandercock, R. F. G., Sanford, J., Saunders, C. N., Scarisbrick, Dr. R., Scorgie, Professor N. J., Scott, W. A., Seamer, J., Sellers, Dr. K. C., Sellers, R. F., Serth, G. W., Sewell, M. M. H., Short, Colonel G. V., Short, R., Shorter, D. G., Shuttleworth, A. C., Silcock, H. G., Sinclair, K. B., Singleton, W. B., Smith, G. F., Smith, Dr. R. N., Soulsby, Dr. E. J. L., Spalding, V. T., Sparrow, W. B., Spence, N., Spradling, F. R., Spreull, A., Stafford, L. P., Steele, R. L., Steele, T., Steele-Bodger, A., Steele-Bodger, M., Stevens, A. J., Stevens, W. A. S., Stevenson, D. E., Stewart, J. S., Stewart, W. L., Stobo, T. W., Straiton, E. C., Stubbins, A. G. J., Sugden, Mrs. B. S., Swaby, R., Swann, H. C., Swanney, J. M., Swarbrick, O., Tatis, L. F., Taylor, Dr. E. L., Taylor, J. H., Terlecki, S., Tew, N. C., Thaxter, L. S., Thomson, Alex. (Glasgow), Thomson, A. (Beckenham), Thomson, Mrs. E. I., Timoney, J. F., Toop, B. R. V., Townsend, C. W., Townson, W. K., Troughton, Miss S. E., Tullis, G., Tutton, E. A., Tweed, W., Uvarov, Miss O., Waddington, F. G., Waitley, D. H., Walker, R. G., Wallace, J. C., Warthrop, C. C., Waters, P. J., Watt, D. J., Watt, W., Weaver, Miss Barbara, Webber, R. P., Weighton, C., Weipers, Mrs. Mary, Weipers, Professor W. L., Welch, Miss Rosemary, West, G. P., White, J. B., Whittlestone, P., Wicks, B., Wilkins, Major J. H., Wilkinson, E., Wilkinson, J., Williams, A., Williams, E. I., Willing, R. R., Wilsdon, Dr. A. J., Wilson, A. L., Wilson, A., Wilson, W. W., Wooldridge, Dr. [illegible], Wood, J. C., Wood, W. H., Woodford, M. H., W[illegible], A. N., Wortley, Major W. H., Wright, A. J., Young, M.

**Visitors**

Ash, R. W., Atkinson, Mrs. G., Baker, T., Banes, Stanley J., Barclay, J. M., Barr, J. H., Barr, T. J., Barr, Mrs. Margaret, Beaton, Mrs. W. G., Beaumont, Mrs. G. L., Bell, Mrs. R. L., Blackburn, Mrs. B. M., Blackburn, Miss E. A., Blaxter, Dr. J. D., Bondi, Professor A., Bowden, N. L. P., Brown, Mrs. Rosa M., Bywater, Mrs. H. E., Callender, Mrs. E. R., Chu, Dr. H. P., Collins, N. C., Crawshaw, Mrs. Eileen, Dall, Mrs. M., Dalrymple-Champneys, Sir W., Dano, Lieut.-Col. M. J., Davies, Mrs. G. O., Davies, I., Denholm, Mrs. Margo, Eyre, P., Ferguson, Mrs. C. M., Glover, Mrs. R. E., Gould, Mrs. G. N., Graham, Mrs. A. M., Groves, Wm., Haitree, E. F., Hebeler, Mrs. Sybil, Henderson, Mrs. S., Hewetson, Mrs. Marjorie, Holroyd, Mrs. H., Horne, W. P., Ingam, N. R., Ingram, Miss D. A. J., Ingram, J. F. W., Jennings, Mrs. and Miss A., Jennings, Mrs. S., Jones, Mrs. Pearl, Jones, N. H., Jones, Mrs. W. O., Keiller, Miss Joan, Lasher, Colonel N. A., Lauder, Mrs. J. S. J., Lingwood, Mr. and Mrs. M. B., Lomas, H., Macrae, Mrs. Joan, McCrae, Mrs. C. T., McLauchlan, E., McShane, Mrs. H. G., Miller, Mrs. W. C., Milton, Mr. and Mrs. I. H., Mitchell, C., Mitchell, Mrs. W. M., Morris, Mrs. E. G., Morris, Miss G., Morris, J., Motton, Mrs. Dora, Newsam, Mrs. I., Nisbet, Mrs. J., Oates, Mr. and Mrs. W. G. R., Ohman, A. F. S., Oliver,

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# The "Lawing" of Dogs

BY

**R. H. A. MERLEN**

**Royal Veterinary College, London**

IN common with the other beasts of the chase the Red Deer has a lot to answer for in England. Confronted by the voracious desire of the half-famished medieval peasantry to get their teeth into red meat of some kind, and by the fact that, by their very presence in the forests, the deer constituted a perpetual incentive to the freer spirits among their subjects to leave the virtual slavery of the villages, take to the woods, live off the country, and turn brigand, the early monarchs did their utmost to preserve the deer, and the Royal Prerogative of hunting, by a series of savage game laws known as the Forest Charters. According to these death, or at least the reduction to the status of a slave and the forfeiture of all citizen's rights, was the common penalty for deer poaching, and with this as a sombre background, Canute's canon that "a slave who chases a deer until it pants shall be skinned alive," has an almost rollicking Scandinavian flavour about it.

William I—*amabat enim ferus rex feras, quasi pater ferarum*, a pungent description that deserved a better fate than to be devitalised and bowdlerised into the nursery story rubbish about "loving the Red Deer as though he was their father"—upheld the Forest Laws with all the vigour at his tremendous command, and punished poachers by evulsing their eyeballs. It was not until the Charter of John in 1215 that it was laid down that "none shall lose life or limb for the killing of our deer."

Even in the worst days, however, the law still recognised the fact that the cottars, squatters, and villeins living near, or in, the forests had the right to defend themselves and their property from the howling wilderness around, and all it contained in the way of wild [illegible]s and desperate men, by the keeping of guard dogs. The recognition arose no doubt from the fact that it was appreciated, from loss of revenue, that it was ultimately the State which suffered from the depredations occasioned by wolves and robbers. But while the law was prepared to countenance the keeping of dogs by the local inhabitants, it was determined that this concession should not open the door to wholesale spare-time poaching, and proceeded to safeguard the deer in the following ways.

Firstly, the keeping of "spaniels" (*canis sagax*, or *odorisequus*—surely something more approaching bloodhounds than "spaniels"?) and those dogs "*quod Angli* 'GREYHOUNDS' *vocunt*," as the Charter of 1016 puts it (in itself an eloquent testimony to the antiquity of this breed in England), was absolutely forbidden in the Royal forests and their neighbourhood.

Secondly, while "little dogs" could be kept with impunity, "mastifs" or "molossi" ("barking curs" as Manwood contemptuously describes them in "A bricfe collection of the Lawes of the Forest," 1592), could only be kept if "lawed," judicially mutilated, that is, in such a way as to cut down their running speed and make it difficult, or impossible, for them to catch a deer.

In the time of Canute, and for a considerable period afterwards, this "mutilatio," or "genuiscissio," "hoxing," "hambling," or "hocksynewing," as it was called, seems, at least from the name, to have been carried out by cutting, not the *tendo Achilles*, but either the tendons at the back of the knee or, far more likely, from the danger of haemorrhage arising from an incision at this site, the straight patellar ligament. This operation, which was done to one leg only, would have the effect of throwing the *quadriceps extensor cruris* group of muscles more or less completely out of action and giving the dog a "swinger" for the rest of his life. It was with their "swingers" that the "Regardatores," the forestry inspectors, expected to find all the farm dogs when they came round on their tri-annual inspections.

As time went on, however, it seems to have become apparent that a dog crippled in this way was virtually useless to its owner and was incapable of carrying out its lawful duties, those of tackling an intruder, or standing up to a wolf. Accordingly, by Henry II's time, the "mutilatio" was reduced to the removal of 3 of the terminal digits of one fore paw "at the place where the toe joins the skin." This cutting off of the last phalanges was known as "expeditioning" and was carried out with a heavy mallet and a broad-bladed chisel, the paw being put on a block of wood.

Very naturally extortion and bribery became associated with the ceremony at an early stage and it appears that the inspectors, and the court generally, soon came to expect a handsome present from the owner of each dog brought forward as a candidate for lawing; an imposition which the owner was in no position to resist. So much so that the Charter of 1215 found it necessary to lay down that "from henceforth no ox shall be exacted for the lawing of dogs."

Once this had been carried out the results for the owner were important because if, by chance, an expedited dog managed to get up to a deer and bring it down "*ipsi cujus erat quietus erit de illo facto*," the owner was not responsible for the slaying. If, on the other hand, a deer was caught by an unmuti-

(*Concluded at foot of adjoining column*)

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**Congress Attendance List, 1957.**—*Concluded.*

Mrs. G. M. G., Oliver, Mrs. L. C., Orfeur, Mrs. N. B., Pope. D., Philpott, Mark, Pugh, Mrs. C., Pugh, Miss C. R., Ritchie, Mrs. J. N., Roberton, Mrs. D. P., Robertson, George, Rose, Miss M. Elaine, Seidel, Dr. J. K., Sellers, Mrs. K. C., Sharp, N. C. C., Suwanakith, V., Tabatabai, Ali, Thomas, E., Thomson, Mrs. Janet, Wicks, Mrs. B., Wills, T. R., Wilson, Mrs. Moira, Wooldridge, Mrs. W. R., Wooldridge, Miss S., Wooldridge, J., Wright, Mrs. A. J., Wright, M. D.

# News and Comment

## JURY SERVICE

The Registrar of the Royal College of Veterinary Surgeons would remind all veterinary surgeons and Supplementary Veterinary Register practitioners practising in the United Kingdom that this is the time of year to obtain exemption from Jury Service. *It must be emphasised that exemption from Jury Service is not automatic.*

Liability to jury service depends upon inclusion in the local jury book which is compiled each year from the Electoral Registers. On these Registers the names of all persons who are, on October 10th in each year, qualified and liable to serve as jurors are marked with the letter " J."

Members have probably filled up a form recently asking them to give the names of all occupants of their households who are eligible to vote. During the period November 28th to December 12th, 1957, the lists compiled after the return of these forms will be displayed in town halls, post-offices, and other public places. They may there be inspected, and if the letter " J " is marked against a member's name and he wishes to obtain exemption from jury service, he must write to the Electoral Registration Officer for his area and point out to him *not later than December 12th* that he is exempt.

The authority which should be quoted in the letter is Section 24 of the Veterinary Surgeons Act, 1948, which reads:—

" (1) No member of the Royal College of Veterinary Surgeons, and no person for the time being registered in the Supplementary Veterinary Register, shall if actually practising veterinary surgery be liable to serve on any jury.

(2) This section shall not extend to Northern Ireland."

## IN MEMORY OF PROFESSOR G. H. WOOLDRIDGE

We are asked to record that further contributions have been made to this Fund, as follows:—

Mr. W. C. Hesketh, Mr. J. N. Ritchie, Professor L. P. Pugh, and the Royal College of Veterinary Surgeons. The total received is now £61 16s. 0d.

*J. W. H. Holmes* writes:—

I was shocked to learn of the death of my former chief, Professor G. H. Wooldridge. It was my privilege to work with him for 15 years and it was an experience for which I shall always be grateful. He was, indeed, one of the really great clinical teachers of his day. He had dignity combined with absolute sincerity and there never was a man more proud of the profession for which he lived. He had the wonderful gift of making difficult problems appear simple, and this was obvious in his lectures and writings.

Professor Wooldridge commanded respect by his personality and ability but he was happy to be known by us all as " Uncle George "; he was always ready to help with advice backed by his knowledge and long experience. Many old students and colleagues have reason to be thankful for this advice.

We mourn the loss of a friend and offer our sincere sympathy to his widow.

## UNIVERSITY NEWS

**Edinburgh**

The undernoted candidate has passed the Part II Examination for the Diploma in Tropical Veterinary Medicine (D.T.V.M.Univ.Edin): Chatterjee, Deba Brata, G.V.SC. (BENGAL VET. COLL.).

## RADIOACTIVITY IN LAMB

Tests for radioactivity by the scientific branch of London County Council have readily distinguished English lamb from New Zealand lamb by its greater radioactive content says an article in *The Times*. From this it is deduced that pastures in New Zealand have been less affected by fission debris than those in England.

Discussing this, the annual report of the scientific adviser for 1956, published recently, emphasises that the " trace " material was small in amount relative to the radio-isotopes which are natural to the animal and it was mainly present in the bone. Methods of detection were used enabling activity to be measured " at levels far below those regarded as having any health significance."

Dr. S. G. Burgess, scientific adviser and official agricultural analyst to the L.C.C., told *The Times* that the amount of radioactivity found in the lamb was far below anything that could affect anybody physiologically.

## FOOD PRESERVATION BY IRRADIATION

Food preserved by radiations is not likely to be seen in the shops for some years, but the process could have a great future. This was the summing up at a conference on irradiated foods held recently at Cambridge.

Irradiation of fresh meat and poultry could appreciably extend storage life under refrigeration. Some changes of quality had been observed and further

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**The " Lawing " of Dogs.**—*Concluded.*

lated dog the owner was held as responsible for the killing as if " he had done it with his own hand." The fine for having an unmutilated mastif about the place was 3s., a paltry enough sounding penalty, but it must be realised that at the time of Domesday such a sum represented about half the annual tax levy from a whole village.

As a jurist, Manwood argues closely as to who it was who was supposed to carry out the " expeditioning," and comes to the conclusion that the court was legally entitled to appoint " any mete and convenient man with such instruments as are mete for the purpose " to do the work. We almost seem to see here a 13th-century veterinary student officiating at some rustic court in the hopes of picking up " *unus solidus* " for a year's faithful vacation attendance at the Swainmotes.

work was required before such processes could be regarded as commercially applicable.

In the treatment of frozen whole-egg pulp, to eliminate Salmonellae food poisoning, there was good promise, in that the damage to the product so far observed had been relatively small and that the advantage to be gained from successful treatment would be considerable.

## ACCESSIONS TO THE R.C.V.S. LIBRARY

APPLEYARD, R. "Ducks." 2nd ed.
BULLOCK, F. "Handbook for Veterinary Surgeons." 2nd ed. 1930.
Plant Protection Conference, 1956. 1957.
GEIGY. "Scientific Tables." 5th ed. 1956.
Rowett Research Institute. Collected papers, **13.** 1957.
O.E.E.C. "Breeding methods for cattle, pigs and poultry in the U.S." 1957.
O.E.E.C. "Control of warble-fly infestation." 1957.
O.E.E.C. "Foot-and-mouth disease viruses." 1957.
W.H.O. "Specifications for pesticides." 1956.
GARNER, R. J. "Veterinary Toxicology." 1957.
SAUNDERS, B. C. "Phosphorus and Fluorine." 1957.
EIGSTI, O. J., and DUSTIN, P. "Colchicine." 1955.
TOMPCETT, D. H. "Anatomical techniques." 1956.
DRABBLE, J. "Text-book of meat inspection." 6th ed. 1956.
Bloodstock Breeders' Review. **45.** 1956.
ROWETT, H. G. Q. "The rat as a small mammal." 1957.
BROWN, M. E. *ed.* "The physiology of fishes." **1.** Metabolism. 1957.
SWIFT, S. *ed.* "Sanitary officers' practice: Food Inspection." 1955.
Annual reports on the progress of chemistry. 1956. **53.** 1957.
Lectures on the scientific basis of medicine. **5.** 1955-6. 1957.
J. Royal Agricultural Society of England. Index to vols. **87** to **115.** 1957.
WELLS, B. B. "Clinical pathology." 2nd ed. 1956.
JEFFERSON, S. "Radioisotopes, a new tool for industry." 1957.
Butterworth's Annotated Legislation Service Statutes Supp. 93.—The Food and Drugs Act, 1955. 1956.
LEE, D. H. K. "Climate and economic development in the tropics." 1957.
W.H.O. Bulletin **10.** No. 5. Rabies.

## EQUINE SENSIBILITY

Readers may be entertained by the following letter published in *The New Statesman* (September 14th) over the signature of Mr. T. St. John Barry, and quoted here by kind permission of the Editor.

"The £8,046 Wolfenden Report doesn't seem to go much further than the opinion, said to have been expressed many years ago by Mrs. Patrick Campbell: 'I don't care what they do as long as they don't do it in the streets and frighten the horses!'"

## FIFTY YEARS AGO

In the course of a speech at the opening of a new session of the Royal Veterinary College, Sir John M'Fadyean recalled the names of several great veterinarians whose work and contributions to the life of the community had carried them far beyond the confines of their own profession. He said:—

"I think I am right in saying he (Moorcroft) was the first Englishman who explored Central Asia, where he died, and his foresight was such that he concluded, without reference to the Government of India, a treaty with the Chief of the Punjab, which placed that important country under British protection. (Cheers.) His action was repudiated by the Government, and 40 years later, what Moorcroft by tact and personality had secured, cost us two of the most severe campaigns ever fought by a British Army. John Gamgee, besides being a brilliant inventor, was the most able and advanced veterinary surgeon of his day. Gowing, who practised in Camden Town, invented the Semaphore system of signalling on railways and the solid wheel for carriages, neither of which have yet been displaced; while Dunlop, a name known to some millions, found time, in the midst of a busy veterinary practice, to bring his ingenuity to bear on his boy's bicycle, with the result that he revolutionised traffic on wheels. (Cheers.) If there is an artistic side to your nature cultivate it, and emulate Adrian Jones, a retired Army Veterinary Officer whose modelling of man and horse seen outside the War Office at Whitehall is the best in this country, and probably in any other. (Cheers.) Municipal and civil life possesses attractions to those of organising capacity and sterling worth. One of London's recent Mayors belonged to the veterinary profession, and there are several who are magistrates. These I admit are side issues in a professional life, but I indicate them as examples of unrestricted adaptability, energy, ability, and genius."

## THE BLUE CROSS

Through the courtesy of the secretaries of this well-known animal welfare society we recently received some notes arising from their annual report. We quote, below, an extract which may be of interest to our readers.

"What we should like to see, where this is practicable, would be the kind of relationship between animal welfare societies and veterinary surgeons which existed between private doctors and voluntary hospitals before the human medical services were nationalised. By arrangement, doctors were able to put their patients in voluntary hospitals and use the operating theatres, equipment, and staff. There was no competition between hospitals and private doctors. They were mutually helpful and indeed indispensable to one another.

"The Blue Cross believes that the provision of such hospital facilities by animal welfare societies would be a very valuable contribution to veterinary medicine, and we shall have a unique opportunity of being the first to institute such a service in London.

"It will obviously be a great advantage to the majority of private veterinary surgeons to be able to use a perfectly equipped operating theatre—the most modern anaesthetic equipment and X-ray unit, etc.—with the assistance of trained staff, and be able to leave their patients in skilled hands until it is safe for them to go home.

"Because of the resources and facilities at its disposal, an animal welfare society should not only provide hospital services where this is practicable, but also use the knowledge it acquires by handling scores of thousands of animals to improve conditions in which animals can be kept. For example, wood is generally quite unsuitable for kennelling. It harbours germs, deteriorates through fouling, and becomes noxious as well as dangerous. It is practically impossible to keep clean, let alone to sterilise. The Blue Cross has now designed, with the help of veterinary

experts, engineers, and our architects, kennel units made of steel and lined with a special composition with automatic drainage. These can be cleaned and sterilised with high-pressure steam.

" No one pretends that the invention of such units will eliminate the fearful menaces of distemper and hard pad, but the risk of infection spreading will certainly be reduced. In the past, stray dog kennels were never free of those diseases."

## THE REGISTER OF VETERINARY SURGEONS

The undermentioned graduates were admitted to membership of the Royal College on the dates shown:—

Ashcroft, Roy Alston, Schoolands Farm, Woodfold Park, Mellor, Blackburn, Lancs, September 25th, 1957, B.V.SC. (LIV.); Crabb, Philip John, High Street, Packington, Ashby-de-la-Zouch, Leics, September 25th, 1957, B.V.SC. (LIV.); Dickinson, Leslie Grant, " Carleton," Flat 3, Lyndhurst Road, Liverpool, 18, September 25th, 1957, B.V.SC. (LIV.); and O'Malley, Mary Catherine Bernardette, 47, Kingsway, Waterlco, Liverpool, 22, September 25th, 1957, B.V.SC. (LIV.).

## R.C.V.S. OBITUARY

We record with regret the deaths of the following members of the profession:—

HEDLEY, John Franklin, The Hollies, Nash, Bletchley, Bucks. Graduated Royal Veterinary College, London, December 20th, 1927. Died September 28th, 1957, aged 64 years.

SHORT, Percy G., 34, Clarke Street, Ipoh, Perak, Malaya. Graduated Royal Veterinary College, London, December 17th, 1902. Died August 1st, 1957, aged 78 years.

### Supplementary Veterinary Register

FLECK, Paul Kintspark, 44, Ombersley Road, Worcester, Veterinary Practitioner. Registered November 28th, 1949. Died September 16th, 1957, aged 51. A service was held at Barbourne St. Stephens Church, Worcester, at 2.15 p.m. on September 19th. The following members of the veterinary profession attended the service and the interment at Astwood Cemetery, Worcester: Messrs. K. W. R. Jones, A. J. Skea, and Walter Scott. Mr. Fleck leaves a wife and four children.

HOPKINS, John (Charles Richard), 271, Osmaston Road, Derby. Died August 25th, 1956.

MILTON, Leslie Jacob, 6, Greenfield Crescent, Patcham, Brighton, 6, Sussex. Registered in the Supplementary Veterinary Register on October 16th, 1950. Died July 20th, 1957.

## PERSONAL

### Births

ANDREW.—On September 23rd, 1957, to Sheila (*née* Bateman) and Angus S. Andrew, M.R.C.V.S., of 251, Wellington Road North, Heaton Chapel, Stockport, a second son, Stuart Angus.

DICK.—On July 31st, 1957, to Mr. and Mrs. D. C. Dick (late of Chard, Somerset), at 13, Canberra Street, Moe, Victoria, Australia, a daughter, Diana Charlotte.

LE CHEMINANT.—On September 23rd, 1957, in Guernsey, to Natica and David Le Cheminant, M.R.C.V.S., of Orange Lodge, King's Mills, a daughter, Maxine Louise.

MALLALIEU.—On September 8th, 1957, to Ruth, wife of John Milne Mallalieu, B.SC., M.R.C.V.S., of 8, Appleton Gate, Newark, a daughter, Cathryn Ruth.

### Engagement

KING—SYMES.—The engagement is announced between Donald Keith King, M.R.C.V.S., younger son of Mrs. W. A. King, of Tor View Avenue, Glastonbury, and the late Mr. W. A. King, and Vanessa Jane, younger daughter of Lt.-Col. B. G. Symes, D.S.O., O.B.E., and Mrs. Symes, of Brook Cottage, Cerne Abbas, Dorset.

**Dr. A. W. Stableforth** will be attending the third meeting of the joint F.A.O./W.H.O. Expert Committee on Brucellosis in conjunction with the Fourth Inter-American Congress on Brucellosis, which are being held in Lima, Peru, from October 7th to 14th inclusive.

## COMING EVENTS

### October

8th (Tues.). Golden Jubilee Dinner for members of the North of Ireland Veterinary Association at Woodbourne House Hotel, Suffolk. Dunmurry, 7.30 p.m.

9th (Wed.). Autumn Meeting of the Society of Women Veterinary Surgeons at the Veterinary Investigation Centre, Coley Park, Reading, 11.30 a.m.

10th (Thurs.). Ordinary Meeting of the Ayrshire Veterinary Association in the Ailsa Lounge, Station Hotel, Ayr, 2.30 p.m.

11th (Fri.). Annual Dinner and Dance of the Royal Counties Veterinary Association at the Randolph Hotel, Oxford, 7.30 p.m.

16th (Wed.). Meeting of the Section of Comparative Medicine, Royal Society of Medicine, at the Society's House, 5 p.m.

Evening Meeting of the Dumfries and Galloway Division at the Crown and Mitre Hotel, Carlisle, 7.30 p.m.

Meeting of the Southern Counties Veterinary Society at the Royal Bath Hotel, Bournemouth, 7.30 p.m.

17th (Thurs.). Ordinary General Meeting of the South-Eastern Veterinary Association at the Royal Star Hotel, Maidstone, 2.30 p.m.

Annual Dinner and Dance of the Yorkshire Veterinary Society at the Cairn Hydro, Ripon Road, Harrogate, 7.30 p.m.

Meeting of the British Small-Animal Veterinary Association at the Queens Hotel, City Road, Chester, 8.30 p.m.

18th (Fri.). Annual Dinner Dance of the South Wales Division at the Seabank Hotel, Porthcawl.

General Meeting of the Mid-West Veterinary Association at the Berkeley Café, Clifton, 2.30 p.m.

23rd (Wed.). Meeting of the R.A.V.C. Division at the Royal Veterinary College, London, N.W.1, 2.15 p.m.

25th (Fri.). General Meeting of the Yorkshire Veterinary Society in the Hotel Metropole, Leeds.
Meeting of the Society for the Study of Animal Breeding at the Royal Veterinary College, Camden Town, N.W.1, 11.30 a.m.

**November**

6th (Wed.). Meeting of the Midland Counties Division at the Regent Hotel, Leamington Spa, 2.30 p.m.

29th (Fri.). Golden Jubilee Dance of the North of Ireland Veterinary Association at the Grand Central Hotel.

## BRITISH VETERINARY ASSOCIATION QUARTERLY MEETINGS IN LONDON

**Wednesday, November 13th, at No. 7, Mansfield Street.**

10.30 a.m. Small-Animals Committee.
2.00 p.m. Parliamentary and Public Relations Committee.
4.00 p.m. Home Appointments Committee.

**Thursday, November 14th, at No. 7 Mansfield Street.**

10.00 a.m. Veterinary State Medicine Committee.
11.30 a.m. Farm Livestock Committee.
12 noon Finance Sub-Committee.
2.15 p.m. General Purposes and Finance Committee.

**Friday, November 15th, at the Connaught Rooms—**

10.30 a.m. Meeting of Council.

## FOWL PEST

The restrictions on the movement and marketing of poultry which came into force on August 15th for the border area of East and West Suffolk have been withdrawn as from October 2nd.

## FOOT-AND-MOUTH DISEASE

The areas described in the schedules below are declared to be Infected Areas for the purpose of preventing the spread of foot-and-mouth disease:—

The County Borough of Middlesborough.

IN THE COUNTY OF DURHAM

The Borough of Stockton-on-Tees.

*In the Petty Sessional Division of Stockton County:* The parishes of East and West Newbiggin, Elton, Longnewton, Preston-on-Tees, Egglescliffe, Aislaby, Newsham, Billingham, Grindon, Norton, Carlton, Redmarshall, Bishopton and Whitton.

*In the Petty Sessional Division of Darlington County:* The parishes of Great Burdon, Morton Palms, Sadberge, Middleton St. George, Low Dinsdale, Sockburn, Neasham and Hurworth.

IN THE COUNTY OF THE NORTH RIDING OF YORKSHIRE

The Borough of Thornaby-on-Tees.

The Petty Sessional Division of Langbaurgh North.

*In the Petty Sessional Division of Gilling East:* The parish of Eryholme.

*In the Petty Sessional Division of Allertonshire:* The parishes of Great Smeaton, Hornby, Appleton Wiske and West Rounton.

*In the Petty Sessional Division of Thornaby and Yarm:* The parishes of Over Dinsdale, Girsby, High Worsall, Picton, Yarm, Kirk Leavington, Crathorne, East Rounton, Castle Leavington, Ingleby Barwick, Maltby, Hilton, Middleton upon Leven, Low Worsall and Stainton.

The City and County Borough of Portsmouth.

IN THE COUNTY OF SOUTHAMPTON (HAMPSHIRE)

The Borough of Gosport.

The Petty Sessional Division of Havant.

*In the Petty Sessional Division of Fareham:* The parishes of Southwick and Widley and Boarhunt and so much of the parishes of Wickham and Fareham as lie to the east of the main road running from Bishop's Waltham *via* Wickham and Fareham to Gosport, including the said road.

*In the Petty Sessional Division of Petersfield:* The parishes of Rowlands Castle and Horndean.

*In the Petty Sessional Division of Droxford:* The parishes of Denmead, Hambledon, Soberton, Swanmore, Droxford, Corhampton and Meonstoke, Exton, Upham and Bishop's Waltham and so much of the parish of Shedfield as lies to the east of the main road running from Bishop's Waltham *via* Wickham and Fareham to Gosport, including the said road.

## ADDRESSES OF DISEASE INFECTED PREMISES

**The list given below indicates, first the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.**

### Anthrax

*Ches.* Church Farm, Church Lane, Thurstaston, Wirral (Sept. 25).

*Yorks.* Highfield Farm, Denton, Ilkley (Sept. 24).

### Foot-and-Mouth Disease

*Cumberland.* Ellercow Farm, Ousby, Penrith; Langwathby Mill, Langwathby, Penrith (Sept. 25); Skirwith Hall, Penrith; Primrose Bank, Skirwith, Penrith; Croft House, Great Salkeld, Penrith (Sept. 26).

*Glouc.s.* Noades Leaze Farm, Wick, Bristol (Sept. 26).

*Hants.* R. E. Port Wing (Dock Area) Camp, Marchwood, Southampton (Sept. 24).

*Lancs.* Central Pork Depot, Buccleuch Street, Barrow-in-Furness (Sept. 23).

*Wilts.* Hartham Farm, Corsham (Sept. 23).

### Fowl Pest

*Kent.* Twenties Farm, Shottendane Road, Margate (Sept. 23).

*Lancs.* The Limes, Blackburn Road, Ribchester, Preston; Holland Slack Farm, Walton-le-Dale, Preston (Sept. 23); Longcroft, Gill Lane, Longton, Preston; Shaunleigh Road, Dob Lane, Little Hoole, Preston; Sherwood, Station Road, Little Hoole, Preston; Manor House Farm, Mains Lane, Little Singleton, Blackpool, Beech House, Brownhill Lane, Longton, Preston; Conway, Mains Lane, Singleton, Blackpool (Sept. 24); Marsh House Farm, Ulnes Walton, Preston; Woodview, Liverpool Old Road, Much Hoole, Preston (Sept. 25); Throstle Nest Farm, Jolly Tar Lane, Coppul, Chorley (Sept. 26).

*Oxon.* Bassett Wood Farm, Stoke Row, Henley-on-Thames (Sept. 23).

### Swine Fever

*Bucks.* Jennings Farm, Littleworth Common, Burnham (Sept. 16).

*Caerns.* Coed Marion Farm (Sept. 23).

*Denbigh.* Wern Issa Farm, Llangollen (Sept. 18).

*Derbys.* Sicklebrook Farm, Coal Aston, Sheffield (Sept. 16); Yew Tree Farm, Back Lane, Cropper (Sept. 23).

*Essex.* Hobbs Cross, Theydon Garnon, Epping (Sept. 16).

*Hants.* Little Metlands Farm, Dean Lane, Bishops Waltham (Sept. 16); Oakley Farm, Mottisfont, Romsey; Manor Farm, Shalden, Alton (Sept. 23).

*Kent.* Lingfield Lodge Farm, Marsh Green, Edenbridge (Sept. 26).

*Lincs.* Whitehouse Farm, Marsh Lane, Boston (Sept. 18); Orton's Yard, Toftfield Lane, Old Leake, Boston (Sept. 24).

*Norfolk.* Ebridge Farm, Witton, North Walsham (Sept. 16); Hall Farm, Scratby, Great Yarmouth (Sept. 23); Bungalow Premises, Woodgate, Swanton Morley, Dereham (Sept. 25).

*Northants.* Westrop House Farm, Byfield, Rugby (Sept. 16).

*Oxon.* Whitehouse Farm, Watlington (Sept. 26).

*Somerset.* Treble House Farm, Kingston, Seymour (Sept. 23).

*Suffolk.* Rendlesham Hall Farm, Rendlesham, Woodbridge (Sept. 23).

*Surrey.* Upper Norwood Farm, Cobham (Sept. 25).

*Worcs.* Lower House Farm, Chaddesley Corbett, Kidderminster (Sept. 16); Latchetts Farm, Heightington, Bewdley (Sept. 17); Brookhampton Farm, Dunhampton, Ombersley (Sept. 25).

*Yorks.* Hall Farm, Wadworth, Doncaster (Sept. 17); South View, Barrowby Lane, Austhorpe, Leeds (Sept. 23); Dimple Farm, Headley Road, Ossett; Worrall Hall Farm, Worrall, Sheffield (Sept. 24).

## CORRESPONDENCE

*The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.*

### Veterinary Benevolent Funds

Sir,—May I take this opportunity of underlining the statement made by Mr. Paul Crosfield in his letter in last week's issue of THE VETERINARY RECORD?

The time has arrived when it is no longer possible to save enough money out of income to provide for a comfortable old age, or for the support of dependents, in the event of ill health, or other misfortune.

I suppose that it would be difficult to find a more independent-minded body of people than the members of our profession. We would all, no doubt, prefer to make our own arrangements. The point I would make is that for most of us, especially the younger members, such arrangements will no longer be adequate. If every active member would subscribe *now* 1 guinea per annum to the Victoria Veterinary Benevolent Fund, with a seven-year covenant attached, a start would be made in the right direction.

Yours faithfully,
E. P. BARRETT.

28, Stoke Road,
Guildford,
Surrey.
*September 28th*, 1957.

### A Scale of Professional Fees

Sir,—It may be useful to know something of the practice in other countries. The "Veterinär-Kalender" (Manual of Veterinary Practice) is issued in Germany from time to time, the last edition being 1957, and contains a list of agreed minimum charges for a wide selection of veterinary activities. There is no legal enforcement of this scale of charges, and practitioners are at liberty to charge more than the amount shown, but I have never heard of a case in which a practitioner under-charges in competition with his colleagues.

Yours faithfully,
G. V. SHORT,
*Veterinary Department.*

Imperial Chemical Industries Limited,
Pharmaceuticals Division,
Fulshaw Hall,
Wilmslow,
Cheshire.
*September 23rd*, 1957.

### Why Not Consult the Profession?

Sir,—I was asked recently to attend to a pullet—nothing very unusual in that!—which came to me in a very roundabout way.

Last Saturday the owner wrote to a leading agricultural journal with regard to the pullet and was advised to communicate with the Agricultural Advisory Service. They, having made a few guesses, said it was too far to come and advised the owner to consult me.

Is it not time that the B.V.A. impressed on the agricultural press that in all cases these matters should be referred to a veterinary surgeon and not to some advisory body? It could well be done by those members of our profession who tell their readers in these journals how to treat animals—which are probably dead before the advice is published anyway!

Yours faithfully,
MARTIN SENIOR.

Dunstable,
Beds.
*September 25th*, 1957.

### Should We Investigate "The Box"

Sir,—I am indeed very interested in Mr. Bell's letter under this heading, and endorse his suggestion that the B.V.A. should investigate the matter. I apologise for my delay in writing, and can but blame the time it takes THE RECORD to get to this part of the world.

May I take this opportunity to give you my experience with "the Box"?

Some time ago I flew from Singapore to Ipoh to attend a race meeting (some 400 miles). During the course of my visit a British Army colonel asked me to look at his polo pony as he thought there was something wrong with its back. On examining the pony I found it to be suffering from osteodystrophia fibrosa, a fairly common condition here. I advised that the pony be destroyed, and the officer said he would think it over. As I left Ipoh the same evening I heard no more until I was racing at the same centre some two months later. On inquiring about the polo ponies in the club from one of the subalterns, I was told that the colonel wanted to see me. The latter rather reluctantly told me the following story.

Being rather attached to the pony, and in view of what it had cost, he decided to try "the Box." Accordingly he plucked a hair from the pony's tail, pierced its ear to obtain a drop of blood, and hastily dispatched these specimens to the U.K. Enclosed with the material was a case history detailing the symptoms.

A reply was received some time later from "the medium" stating that there was a fracture of the last lumbar vertebra, and that rest and hot fomentations would in time effect a cure. As the animal grew steadily worse, so did the further diagnosis of "the Box." In the end, before "the medium" could complete the treatment the pony was destroyed on humane grounds.

Perhaps this one experience is an example of a rare but unfortunate failure of "the Box." If this be so, then I should be very pleased to purchase one of these extraordinary additions to veterinary science.

Yours faithfully,
JAMES H. MARSH.

Straits Racing Association,
Singapore.
*September 23rd*, 1957.

### The "Rights" of Animals

Sir,—As Cicero observed, there is nothing so absurd that it might not have been spoken by some one of the philosophers. Few persons, with scientific training, can honestly claim to-day that the story of the Creation was the true one. By confusing history with folk-lore, the ancient chroniclers maligned our Creator.

Creation is an everlasting process. The world was inhabited by animal life on a large scale before something went amiss, and man developed.

Animals have the same rights as we have and are entitled to all the protection we can afford them. We hold no sovereignty over them, other than that we have established by our superior craft and cunning. To claim otherwise is colossal conceit.

It is perfectly true that one animal may live by eating another, but as yet, vegetarianism has not been scheduled as a crime.

Yours faithfully,

R. H. SMYTHE.

6, Peveril Drive,
The Park,
Nottingham.

*September 28th*, 1957.

Sir,—I read Mr. Hugh Thornton's philosophical letter on the "rights" of animals in to-day's VETERINARY RECORD with great interest. He states that he writes from " the view and stand-point of the Christian philosopher (*i.e.*, not a Christian who philosophises but *vice versa*)." This is indeed a lofty pinnacle of judgment.

Surely philosophy is not the *possession* of truth, not to be found in the proverbs of popular phrases nor in dogmatic principles purporting to be absolute—but in the continual *search* for truth where its questions are more essential than its answers. The question we need to ask here is, " is Mr. Thornton's philosophy muddled or clear?"

To the average person, *i.e.*, a Christian who philosophises, it would appear a trifle muddy, seeming to be based on dogmas which he believes to be *absolute* knowledge. Is not this the argument of a sophist who happens to be a Christian?

Surely children, animals and the insane are God's (and should be our) especial care? Rationally, the "rights" of all three and the "obligations" towards them must be the same and should be controlled by reason. Our individual attitude towards animals always boils down to that perennial question, " do animals possess souls?" We have all, I am sure, met animals with perfectly genuine souls: we have also encountered or heard about human beings—in spite of their outward disguise—who obviously never drew their ration out of the celestial Q.M. stores when they started out on their forlorn trek.

Yours faithfully,

J. H. WILKINS, Major.

Albert Lodge,
Alexandra Road,
Farnborough, Hants.

*September 28th*, 1957.

Sir,—Mr. Hugh Thornton clearly states the Thomist doctrine on this subject, but happily Thomism is not binding on the consciences even of Roman Catholics, and certainly not on that of anybody else. St. Thomas Aquinas derived his doctrine of rights from pagan and not from Christian sources; partly from Aristotle and partly from Roman law, which denied rights to anybody except a "person," that is to say, a man having a certain social status. Originally women, children and slaves were not persons in the legal sense and did not have any legal rights. Surely pagan law, and Thomism, began at the wrong end? We get the notion of right and wrong from our conscience, which prescribes duties, and rights belong to anybody to whom duties are owed. This fact is recognised by British law, which confers legal rights on animals—so that an animal whose right to humane treatment is infringed can be defended in the courts. In France on the other hand, where Roman law still has an influence, cruelty to animals is not punishable unless it is committed in public, so as to offend the feelings of a human being and thus infringe the latter's legal rights.

Yours faithfully,

C. W. HUME,
Secretary-General of UFAW.

7a, Lamb's Conduit Passage,
London, W.C.1.

*September 30th*, 1957.

**DISEASES OF ANIMALS ACT, 1950—GREAT BRITAIN**

**Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases**

| Period | | Anthrax | Atrophic Rhinitis | Foot-and-Mouth | Fowl Pest | Sheep Scab | Swine Fever |
|---|---|---|---|---|---|---|---|
| 1st to 15th September, 1957 ... ... | | 2 | — | 1 | 30 | — | 38 |
| Corresponding period in | 1956 ... ... | 33 | — | 19 | 30 | — | 36 |
| | 1955 ... ... | 21 | 1 | — | 2 | — | 49 |
| | 1954 ... ... | 12 | 1 | — | 3 | — | 42 |
| 1st January to 15th September, 1957 | | 254 | 6 | 40 | 581 | — | 690 |
| Corresponding period in | 1956 ... ... | 1,118 | 8 | 99 | 487 | — | 565 |
| | 1955 ... ... | 523 | 4 | 6 | 383 | — | 1,107 |
| | 1954 ... ... | 205 | 4 | 12 | 594 | — | 1,136 |